

SMALL SCALE ASTM E 119/UL 263
ONE HOUR FIRE TESTING
FOR MARINOWARE
ON JOIST-RITE WITH ARMOROC FLOOR
VTEC #100-2949-1
TESTED: MAY 23, 2008
REVISION 2.0: OCTOBER 14, 2008

October 14, 2008

Client: Marinoware
137 Broadway, Suite B1
Amityville, NY 11701

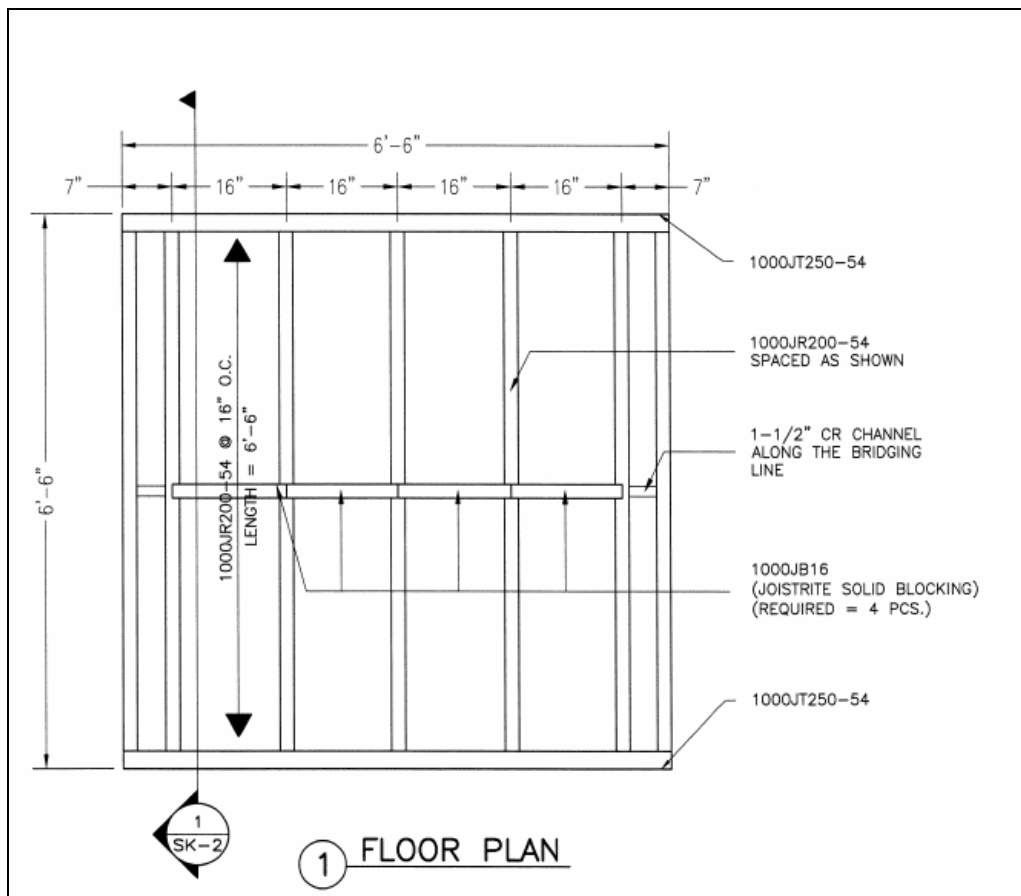
Attn: Mr. Nick Camizzi

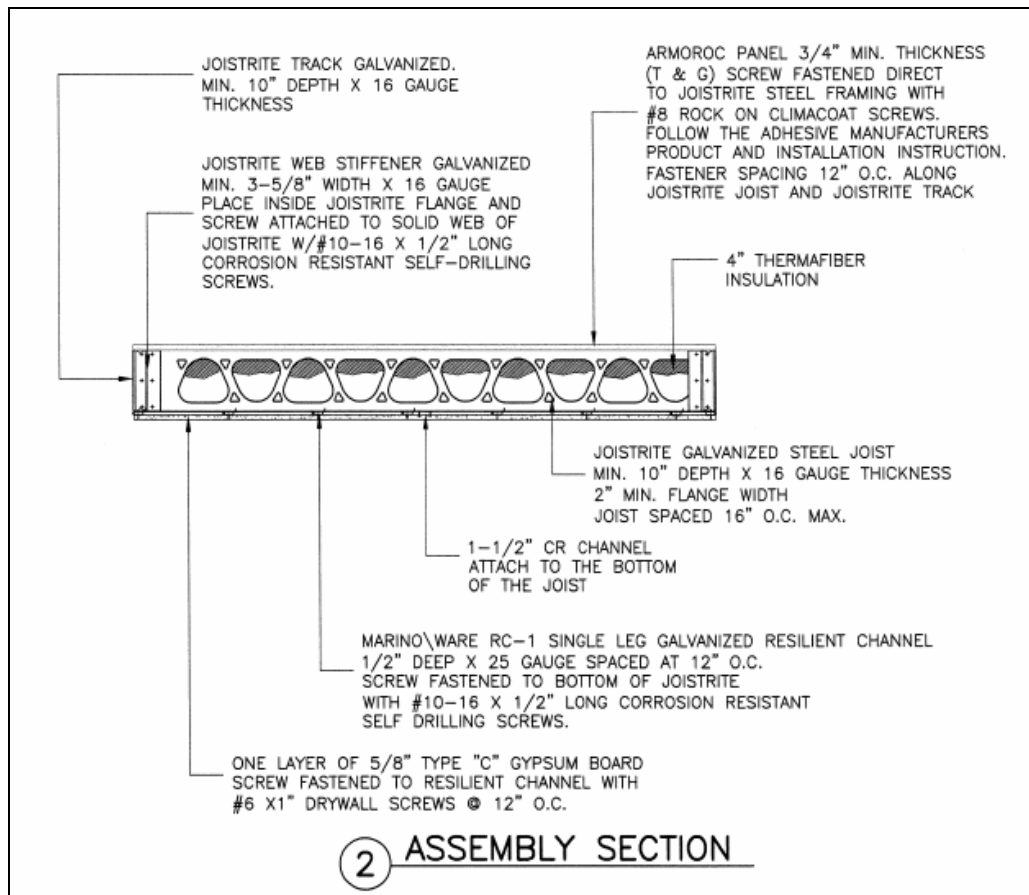
Subject: Small Scale One Hour ASTM E119/UL263 Fire Endurance Screening Testing on Marinoware Joist-Rite with ARMOROC Panel, as furnished by Ameriform, LLC.

SAMPLE DESCRIPTION:

- 1- ARMOROC Panel, 3/4" minimum thickness (as manufactured by Jilin Tiancheng) with Pemco P5100 adhesive applied to Armoroc board joints only, screw fastened direct to Joist-Rite Steel framing with #8 Rock-On Climacoat screws. Fastener spacing 12" O.C.
- 2- 1000JR200-54 Joist-Rite Galvanized steel joists, 10" depth x 16 Ga thickness x 2" flange width. Joists spaced at 16" O.C. maximum. Double joists only at end of panel spaced 7" apart.
- 3- 1000JT250-54 Galvanized steel Joist-Rite Track receiving ends of Joist-Rite joists, 10" depth x 16 Ga minimum. Screw fastened to top & bottom flange of Joist-Rite joist with #10-16 x 3/4" corrosion resistant self-drilling screws.
- 4- Galvanized steel Joist-Rite web stiffener, 3-5/8" x 16Ga, placed inside of perimeter Joist-Rite flange and placed outside of other Joist-Rite steel joists. Joist-Rite Web Stiffener attached to web of Joist-Rite with four #10-16 x 3/4" corrosion resistant self-drilling screws.
- 5- 1000JB16 JoistRite Solid Blocking was placed between the second and third JoistRite joists, between the third and fourth JoistRite joists, between the fourth and fifth JoistRite joists, and between the fifth and sixth JoistRite Joists. Screw fastened to top and bottom flange of JoistRite joist with #10-16 x 3/4" corrosion resistant self-drilling screws through predrilled holes.

- 6- 1-1/2" CR Channel along the bridging line.
- 7- Marinoware RC-1 single leg galvanized resilient channel, 1/2" deep x 25 Ga minimum at 12" O.C. screw fastened to bottom flange of Joist-Rite steel joist with #10-16 x 3/4" corrosion resistant self-drilling screws.
- 8- Thermafiber insulation 4" thick in joist cavity against Armoroc Panel.
- 9- One layer of 5/8" Type C gypsum board, screw fastened to resilient furring channels with #6 x 1" drywall screws at 12" O.C.



**PROCEDURE:**

The furnace measures nominally 5 ft x 5 ft x 7 ft. 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 1/4" grounded Inconel-sheathed chromel-alumel thermocouples.

The unexposed surface temperature of the sample was monitored by nine, 20-gauge type K, fiberglass sheathed thermocouples. An insulating pad was placed over each thermocouple on the unexposed side of the sample.

The fire test was run following the E119/UL263 time-temperature curve.

The endpoint for the E119 Fire Endurance Testing occurs when either all the thermocouples on the unexposed side of the sample reach an average of 250°F + ambient starting temperature, any individual thermocouple on the sample exceeds 325°F + ambient starting temperature, or when the sample experiences burn-through.

RESULTS:

At 20 minutes, smoke began emitting from the sample.

At 60 minutes, the test was stopped without reaching any of the end points.

Time Deflection Data

<u>TIME (MINS)</u>	<u>DEFLECTION (IN)</u>
0	0.00
15	0.00
30	0.00
45	0.00
60	0.00

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

Neil Schultz
Executive Director

Amirudin Rahim
Technical Director

Revision 1.0: "Sample Description" was corrected.

Revision 2.0: Added "as furnished by Ameriform, LLC", "as manufactured by Jilin Tiancheng", and Armoroc "Panel"

***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. It 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 that takes into account all of the factors that are pertinent to an assessment of fire hazard of a particular end use.*

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.

TC 1 Sample Deg. F	TC 2 Sample Deg. F	TC 3 Sample Deg. F	TC 4 Sample Deg. F	TC 5 Sample Deg. F	TC 6 Sample Deg. F	TC 7 Sample Deg. F	TC 8 Sample Deg. F	TC 9 Sample Deg. F	TC 10 Furnace Deg. F	TC 11 Furnace Deg. F	TC 12 Furnace Deg. F	TC 13 Furnace Deg. F	TC 14 Sample Average Deg. F	TC 15 Furnace Average Deg. F
62	62	62	62	62	62	62	62	61	70	73	77	76	74	62
62	62	62	62	62	62	62	62	61	196	245	270	242	238	62
62	62	62	62	62	62	62	62	61	546	598	639	599	596	62
62	62	62	62	62	62	62	62	61	797	810	843	824	819	62
62	62	62	62	62	62	62	62	61	901	937	935	933	927	62
62	62	62	62	62	62	62	62	61	974	1004	1007	1004	998	62
62	62	62	62	62	62	62	62	61	1065	1075	1113	1094	1087	62
62	62	62	62	62	62	62	62	61	1116	1118	1138	1134	1126	62
62	62	62	62	62	62	62	61	61	1164	1178	1178	1179	1175	62
62	62	62	62	62	62	62	62	61	1218	1222	1224	1224	1222	62
62	62	62	62	62	62	62	62	61	1311	1307	1315	1320	1313	62
62	62	62	62	62	62	62	62	61	1351	1341	1343	1351	1346	62
62	62	62	62	62	62	62	62	61	1363	1350	1359	1361	1358	62
62	62	62	62	62	62	62	62	61	1380	1365	1377	1374	1374	62
62	62	62	62	62	62	62	62	61	1379	1370	1390	1383	1380	62
62	62	63	63	63	62	62	62	62	1398	1392	1415	1406	1403	62
63	62	63	63	63	62	62	62	62	1514	1351	1457	1443	1441	62
63	62	63	63	63	62	62	62	62	1463	1461	1455	1461	1460	62
63	63	63	64	63	62	62	62	62	1499	1499	1415	1473	1471	63
63	63	63	64	64	62	62	62	62	1482	1481	1472	1479	1478	63
63	63	63	65	64	63	63	63	62	1295	1575	1568	1481	1480	63
63	63	63	66	65	63	63	63	62	1494	1491	1484	1491	1490	63
63	64	63	66	65	63	63	63	62	1507	1506	1502	1511	1507	64
64	64	63	67	66	63	64	63	63	1509	1506	1502	1513	1508	64
64	64	64	68	67	63	64	64	63	1510	1509	1502	1513	1509	65
64	65	64	69	68	64	65	65	63	1513	1509	1507	1514	1511	65
64	65	64	69	68	64	65	65	63	1517	1510	1504	1514	1511	65
65	66	65	70	69	65	65	66	64	1517	1517	1513	1518	1516	66
65	67	65	71	70	65	66	66	64	1525	1521	1498	1523	1517	66
66	67	65	72	71	65	67	67	64	1524	1519	1517	1526	1521	67
66	68	66	73	72	66	67	67	65	1523	1525	1522	1525	1524	68
67	69	66	74	73	66	68	68	65	1538	1536	1533	1532	1535	68
67	69	66	75	74	66	68	68	66	1554	1547	1544	1557	1550	69
68	70	67	76	75	67	69	69	66	1570	1572	1564	1574	1570	70
68	71	67	78	76	67	70	69	67	1597	1580	1575	1591	1586	70
69	72	68	79	78	68	70	70	67	1569	1566	1567	1572	1569	71
69	73	68	81	79	68	71	71	68	1573	1564	1568	1575	1570	72

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70	75	68	83	81	68	72	71	68	826	1572	1572	1327	1324	73
70	76	69	84	82	69	72	72	69	1591	1588	1582	1588	1587	74
71	77	69	86	84	69	73	73	69	1592	1592	1589	1598	1593	75
71	78	70	88	86	70	74	73	70	1604	1597	1599	1606	1602	75
72	79	70	90	87	70	74	74	71	827	1603	1599	1350	1345	76
72	80	71	91	89	71	75	74	71	1611	1606	1609	1617	1611	77
73	82	71	93	91	71	76	75	72	1618	1617	1611	1621	1617	78
73	83	71	95	92	72	76	75	72	1619	1617	1614	1626	1619	79
73	84	72	97	94	72	77	76	73	1621	1621	1619	1622	1621	80
74	85	72	99	96	72	78	76	73	1628	1623	1624	1630	1626	81
74	87	72	101	98	73	79	77	74	1091	1626	1629	1454	1450	82
75	88	73	103	100	73	79	78	74	463	1630	1634	1252	1245	83
75	89	73	105	101	73	80	78	75	1646	1641	1644	1653	1646	83
76	91	74	107	103	74	81	79	76	1645	1647	1646	1652	1647	84
76	92	74	109	105	74	81	80	76	1654	1648	1646	1654	1651	85
76	93	75	112	107	75	82	80	77	1664	1664	1666	1667	1665	86
77	95	75	114	109	75	83	81	77	1674	1677	1675	1683	1677	87
77	96	75	116	111	76	84	81	78	1680	1683	1681	1687	1683	88
78	98	76	118	113	76	85	82	79	1685	1689	1685	1687	1687	89
79	99	77	120	114	77	85	83	79	1696	1691	1695	1699	1695	90
79	101	77	123	117	77	86	84	80	1692	1693	1694	1702	1695	92
80	102	77	125	118	78	87	85	81	1701	1701	1698	1705	1701	93
80	104	78	127	120	78	88	86	82	1711	1706	1706	1714	1709	94
81	105	79	129	123	79	89	87	82	1709	1708	1707	1713	1709	95