TEST REPORT

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RENDERED TO

Contego International Inc.
PO Box 49
ROCHESTER IN 46975

PRODUCT EVALUATED: Contego Passive Fire Barrier Latex Thin Film
Intumescent applied to wide flange beams
EVALUATION PROPERTY: Fire Resistance

Report of Testing Wide Flange beams coated with Contego Passive Fire Barrier Latex Thin Film Intumescent for compliance with the applicable requirements *ASTM E119-08a, Fire Tests of Building Construction and Materials*

1 Table of Contents

2 Introduction

Intertek Testing Services NA, Inc. (Intertek) has conducted testing for Contego International, Inc. on wide flange beams coated with Contego Passive Fire Barrier Latex Thin Film Intumescent, to evaluate its fire resistance. Testing was conducted in compliance with the applicable requirements *ASTM E119-08a, Fire Tests of Building Construction and Materials.* This evaluation took place on February 26, 2009.

3 Test Samples

3.1. SAMPLE SELECTION

Samples were submitted to Intertek directly from the client. Samples were not independently selected for testing. Samples were received at the Evaluation Center on December 9, 2008.

3.2. SAMPLE AND ASSEMBLY DESCRIPTION

Intertek technicians constructed an 18" tall restraining frame from reinforced steel and normal weight concrete, with inner dimensions of 19' 2" X 13' 2" and outer dimensions of 22' X 16' (see Appendix A). Support saddles, constructed from ¾" steel plate, 28" high and 16" wide, with triangular steel gussets, were welded to the sides of the inner steel channel, 53-3/8" o.c., starting 28-1/4" from the north end of the frame.

Multiple concrete decks were poured using 1½" deep, 20 Gauge corrugated steel decking filled to a total depth of 4" using minimum 3000 psi normal weight concrete. They were installed over the beams with 1" gaps between sections so they provided no composite action to the beams. The depth from the top of the flute to the top of the concrete was 2 ½". Fifteen sections of deck were created for use over the beams: 9 were 37" X 52 ¼", 4 were 17" X 52 ¼". A reinforced concrete slab, 12' 7" X 5' 7 ¾" X 6" was also created, to cover the south end of the furnace not covered by the beam decking (see Appendix B). The assembled components were cured for a minimum of 28 days. A hygrometer showed the RH to be 56.2% just prior to the test.

One inch (1") holes were drilled through the lower section of the flute each of the small decks (1 in the 17"-wide decks and 2 in the 37" decks) to secure the decks to the beams (see Appendix B). The decking was installed onto the beams with the all-thread "spines" penetrating each of the sections, and secured with ¾" washers and nuts, preventing them from falling into the furnace during the test.

The wide flange beams to be tested were 13' long: 2 were W10 X 49 (Beams #1 and 3) and 1 W12 X 120 (Beam #2). The three beams were sand blasted to a surface cleanliness of SSPS SP10 (near white blast) with a 2 ½ - 3 ½ mil profile, and primed with 3 – 4 mils of Rust-Oleum High Performance Oil Based Metal Primer. The beams were then instrumented with 12 thermocouples each, installed in 3 rings of 4 each, with the rings being located 39" apart. The TCs were inserted to mid-depth of each section of steel (see Appendix B for details).

NOTE: Beam #1 was for research purposes only. All information pertaining to Beam #1 is located in Appendix A.

On December 15 and 16, 2008, representatives from Contego International, Inc. applied the Contego Passive Fire Barrier onto Beams #2 and #3, using an airless sprayer. The target dry thickness of the barrier on all beams was 60 mils. The calculated average dry thickness and the curing times of the fire barrier are shown below. A dry- thickness map can be found in Appendix B.

- Beam #2 (W 12 X 120) 58 mils 72 days
- Beam #3 (W 10 X 49) 66 mils 72 days

Once allowed to dry, the beams were top coated using Rust-Oleum High Performance Oil Based Protective Enamel (gloss, smoke gray) at a target thickness of 2 mils. After allowing the beams to cure at ambient temperature for a minimum of 14 days, they were lowered into the restraining frame, onto the saddles, with Beam #2 situated closest to the South end and Beam #3 on the North. The beams were restrained from longitudinal thermal expansion by using steel shims between the beam ends and the saddles. Eight lengths of ¾" all-thread were welded to the top of each beam, 9 ½" from each end then 38" o.c. for use in securing the decking.

With the assembly settled on the furnace, 4pcf mineral wool was inserted into the open flutes between the beam and the decks such that the insulation extended a nominal 1" beyond the beams width on each side. Nominal 1" ceramic fiber was installed between the deck sections, and deck and the restraining frame.

Once the installation of sample was complete, the hydraulic load framing system was placed on top of the deck. Three loading frames were used, each responsible for loading one beam. The live load of 1038 lbs/lf for each beam was submitted by the client. The loading of the test assembly was controlled by a single hydraulic pump, with a manifold to control the load for each of the 3 beams so that, as each beam failed during the test, the hydraulic supply line to the that beam could be cut off, allowing the test on the other beams to continue uninterrupted. Specifications regarding the calculation of the loads can be found in Appendix D.

A summary of the beams to be tested is presented below. All the beams were 13' in length, with a free span of 12'0.

Beam	Description	Barrier Thickness	Applied Load	Actuators / Beam
#2	W 12 X 120	58 mils	1038 plf	1
#3	W 10 X 49	66 mils	1038 plf	1

4 Testing and Evaluation Methods

The output from the 36 thermocouples, 12 furnace probes, and 3 linear transducers was monitored by a 300- channel Yokogawa, Inc., Darwin Data Acquisition Unit. The computer was programmed to scan every 6 seconds and save data every 60 seconds. Following the test, those files were imported into MS Excel for tabular and graphical display (presented in Appendix B).

The non-composite deck was not integral to the structural design of the beams in this test and, therefore, was not restrained. The live load of 1038 lb/lf was applied to the beams incrementally, using the single point system described earlier. Refer to Appendix D for load calculations.

4.1. TEST STANDARD

Testing was conducted in compliance with applicable requirements of ***ASTM E 119-08a, Standard Test Methods for Fire Tests of Building Construction and Materials.***

5 Testing and Evaluation Results

5.1. RESULTS AND OBSERVATIONS

The test was initiated at 8:00 P.M., on Thursday, February 26, 2009. Tony Scott, representing Contego International, Inc. was in attendance. The ambient temperature and humidity at the time of the test were 81°F and 60% RH, respectively. The Maximum TC Limit was 1300°F and the Average TC Limit was 1100°F.

The observations made during the test are listed below:

Time (min:sec)	Observation
0:00	The test was initiated at 8:00 P.M.
5:00	The char layer was growing
7:00	Some char was flaking off Beam #2
11:00	The steel was exposed on Beam #2
70:00	Decks over all 3 beams were starting to crack
87:00	Thermocouple # 36 on Beam #3 exceeded the Max TC Limit
88:00	Beam #2 exceeded the Average TC Limit
180:00	The test was terminated

The beams exceeded one of the temperature limits prior to any effect of the load: Beam 3 exceeded the Maximum TC Limit at the 87-minute mark of the test. Beam 2 exceeded the Average TC Limit during the 88th minute, though no single TC exceeded the Max TC Limit until minute 103.

The deflection of the surface over each beam was measured by linear transducers located 8 inches from the midpoint of each beam. Abbreviated deflection data is presented in the table below (see Appendix D for complete data set and a graph).

Time	Deflection (inches)	
	Beam # 2	Beam # 3
0 load	0	0
Loaded	0.038	0.094
00:00	0.038	0.094
15:00	0.13926	0.17
30:00	0.20922	0.186
45:00	0.32307	0.302
60:00	0.43131	0.432
75:00	0.48345	0.550
90:00	0.49995	0.64
105:00	0.49665	0.692
120:00	0.47586	0.866
135:00	0.29865	1.34
145:00	0.19932	1.906
165:00	0.49566	3.922
175:00	0.88209	5.64
180:00 (T/T)	1.09494	

A summary of the temperature and deflection failure points for each beam is presented below:

Beam #	Exceeded 1100°F Ave TC Limit (min)	Exceeded 1300°F Max TC Limit (min)	"Load Off" (min)
#2	88	–	–
#3	–	87	175

Assembly drawings and specifics, Temperature Data and Photographs documenting the test can be found in the Appendices and the end of the report.

5.2. 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.

The correction for each of the beams is presented in the tables below:

Correction Factor for the Fire Endurance Test Beam #2

ITEM	DESCRIPTION	TEST VALUE
C	correction factor	-0.19 minute -11 seconds
I	indicated fire-resistance period	88 minutes
A	area under the curve of indicated average furnace temperature for the first three fourths of the indicated period	91893 (°F•min)
As	area under the standard furnace curve for the same part of the indicated period	92200 (°F•min)
ITEM	**DESCRIPTION**	**TEST VALUE**
L	lag correction	3240
	FIRE RESISTANCE PERIOD ACHIEVED BY THIS SPECIMEN ==>	88 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

Correction Factor for the Fire Endurance Test Beam #3

ITEM	DESCRIPTION	TEST VALUE
C	correction factor	-0.19 minute -11 second
I	indicated fire-resistance period	87 minutes
A	area under the curve of indicated average furnace temperature for the first three fourths of the indicated period	90245 (°F•min)
As	area under the standard furnace curve for the same part of the indicated period	90547 (°F•min)
ITEM	**DESCRIPTION**	**TEST VALUE**
L	lag correction	3240
	FIRE RESISTANCE PERIOD ACHIEVED BY THIS SPECIMEN ==>	87 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

On February 26, 2009 Intertek Testing Services NA, Inc. (Intertek) conducted testing for Contego International, Inc. on wide flange beams coated with Contego Passive Fire Barrier Latex Thin Film Intumescent, to evaluate its fire resistance. Testing was conducted in compliance with the applicable requirements *ASTM E119-08a, Fire Tests of Building Construction and Materials.* The table below presents the ratings achieved by each beam, based on the data from this test:

Beam	Size	Avg Barrier Thickness	Applied Load	Restrained Beam Rating	Unrestrained Beam Rating
#2	W 12 X 120	58 mils	1038 plf	176 min	88 min
#3	W 10 X 49	66 mils	1038 plf	174 min	87 min

The conclusions of this test report may not 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, INC.

Tested by: _____
Victor M. Burgos
Test Engineer, Fire Resistance

Reported by: _____
Michael A Brown
Technical Writer

Reviewed by: _____
Mike Dey
Engineering Manager, Fire Resistance

APPENDIX A
Beam #1 Data (W10 x 49)
For Research Purposes Only

Beam #1 (W 10 x 49)

Below is a summary describing Beam #1:

1) Passive fire barrier completion date: February 10, 2009
2) Target passive fire barrier dry thickness: 60 mils
3) Calculated average for passive fire barrier dry thickness: 60 mils
4) Curing time at test date: 14 days
5) Applied Load: 1038 plf
6) Load type: Single point

The same construction and installation techniques used for Beams 2 and 3 were also used for Beam 1. For the test, this beam was lowered into the restraining frame (onto the saddles) and situated on the South end of the furnace. The test was initiated at 8:00 P.M., on Thursday, February 26, 2009. Tony Scott, representing Contego International, Inc. was in attendance. The ambient temperature and humidity at the time of the test were 81°F and 60% RH, respectively. The Maximum TC Limit was 1300°F and the Average TC Limit was 1100°F. The observations made during the test are listed below:

Time (min:sec)	Observation
0:00	The test was initiated at 8:00 P.M.
5:00	The char layer was growing
55:00	Thermocouple #4 on Beam 1 exceeded Max TC Limit
145:00	Load off for Beam #1
180:00	The test was terminated

The deflection of the surface over the beam was measured by a linear transducer located 8 inches from the midpoint. Abbreviated deflection data is presented in the table below (see Appendix D for complete data set and a graph).

Time	Deflection (inches)
	Beam # 1
0 load	0
Loaded	0.08
00:00	0.08
15:00	0.29
30:00	0.526
45:00	0.766
60:00	0.936
75:00	0.854
90:00	0.82
105:00	0.908
120:00	1.616
135:00	3.648
145:00	7.694
165:00	
175:00	
180:00 (T/T)	

A summary of the temperature and deflection failure points for Beam #1 is presented below:

Beam #	Exceeded 1100°F Ave TC Limit (min)	Exceeded 1300°F Max TC Limit (min)	"Load Off" (min)
#1	–	55	145

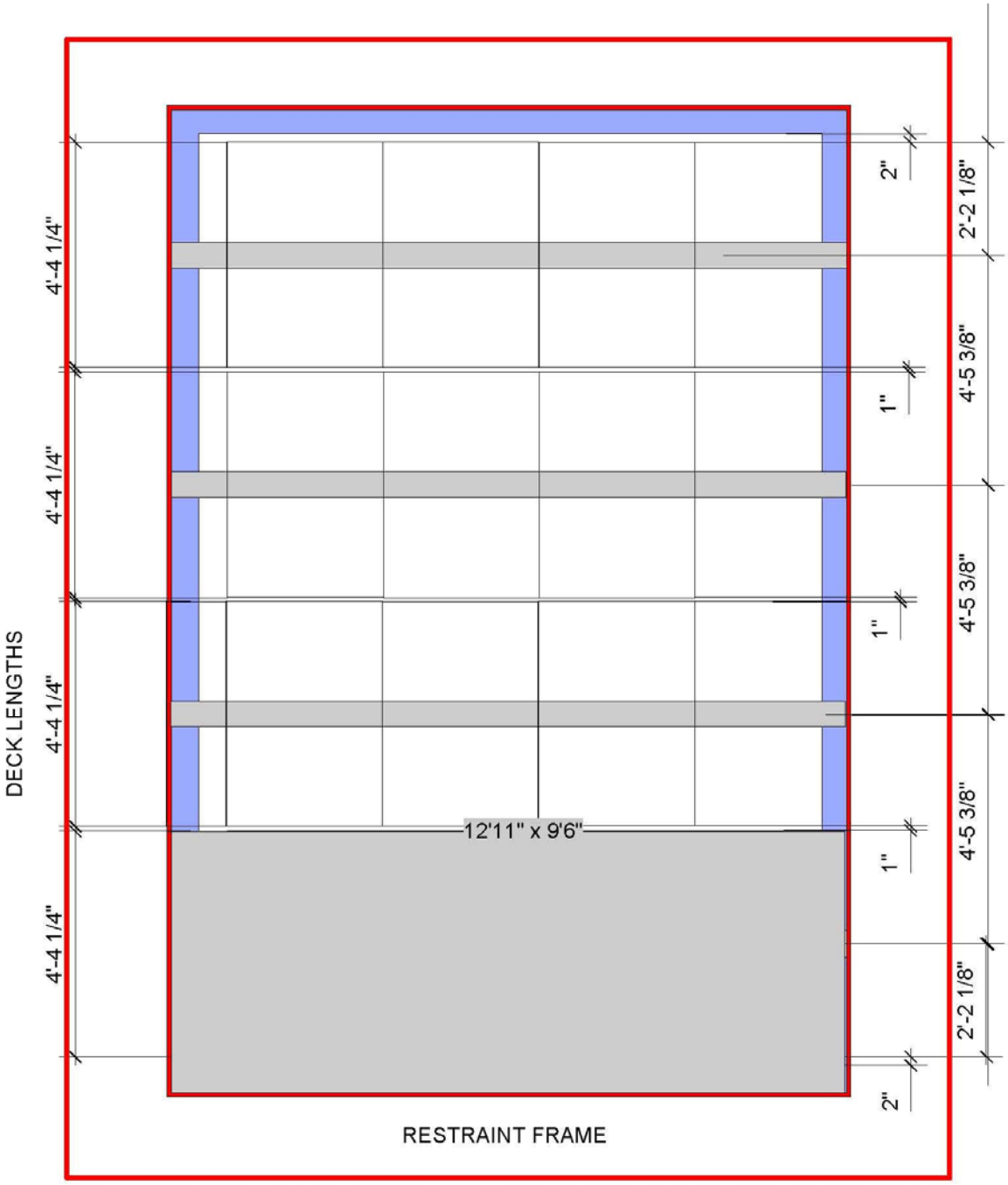
In accordance with the E119 test standard, a calculation for any correction to the indicated fire resistance period was done. The correction factor was then mathematically added to the indicated fire resistance period, yielding the fire resistance period achieved by this specimen.

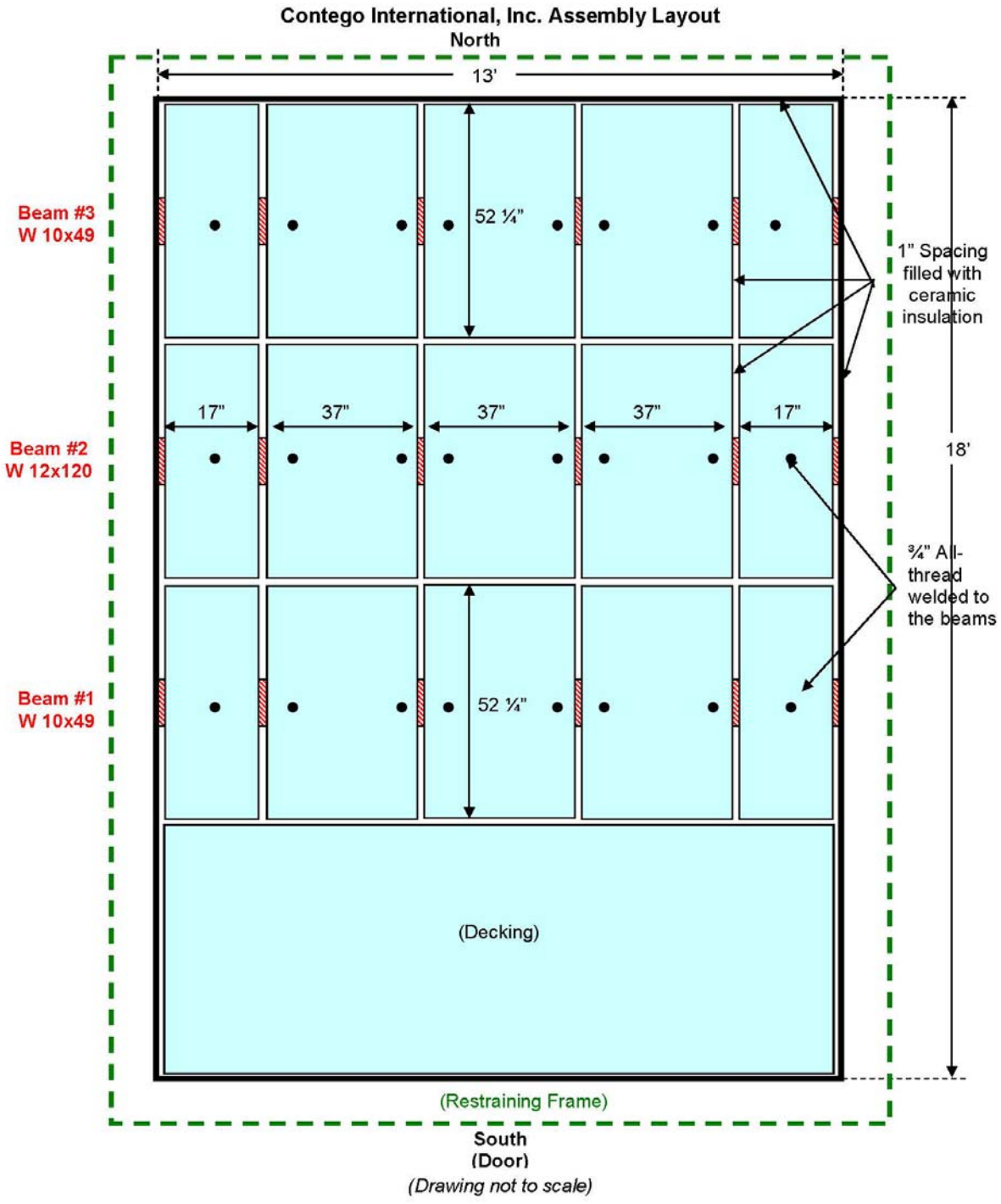
Correction Factor for the Fire Endurance Test Beam #1

ITEM	DESCRIPTION	TEST VALUE
C	correction factor	-0.18 minute -11 second
I	indicated fire-resistance period	55 minutes
A	area under the curve of indicated average furnace temperature for the first three fourths of the indicated period	51784 (°F•min)
As	area under the standard furnace curve for the same part of the indicated period	52048 (°F•min)
ITEM	**DESCRIPTION**	**TEST VALUE**
L	lag correction	3240
	FIRE RESISTANCE PERIOD ACHIEVED BY THIS SPECIMEN ==>	55 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.

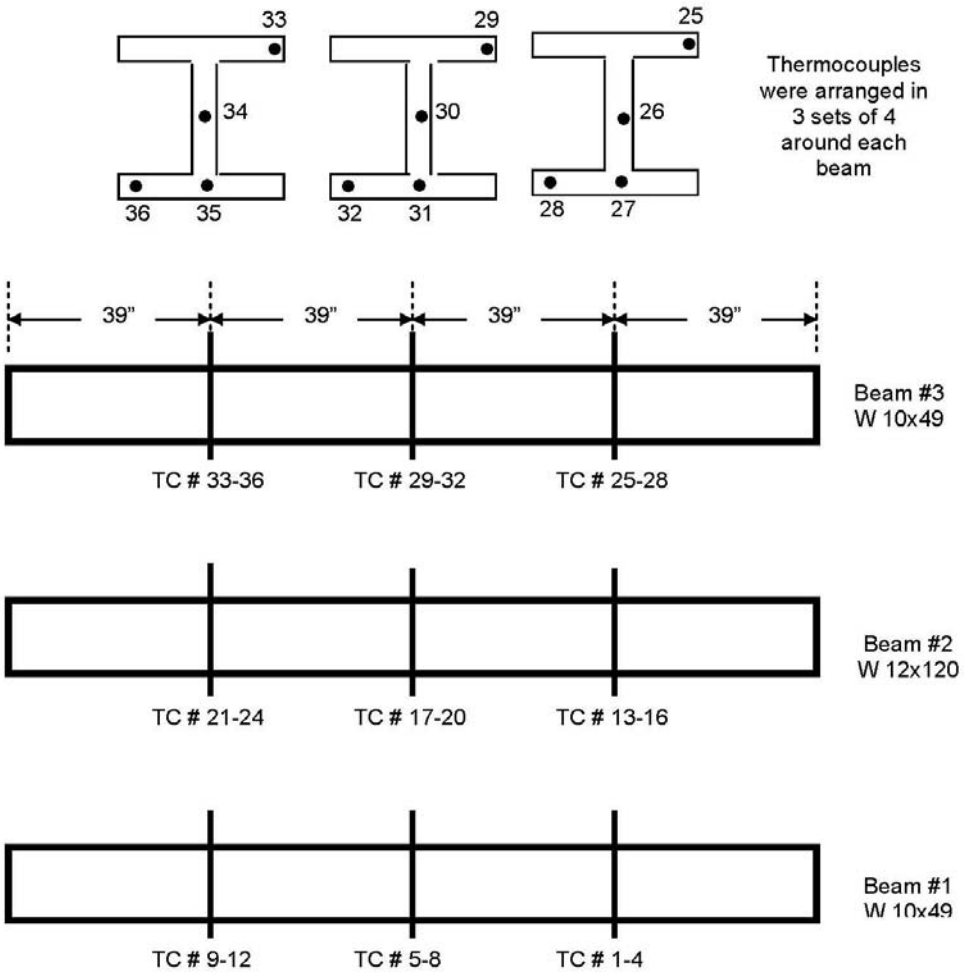
APPENDIX B
Assembly Drawings and Fire Barrier Thickness Map


DECK LENGTHS
4'-4 1/4"
4'-4 1/4"
4'-4 1/4"
4'-4 1/4"
2"
1"
1"
1"
2"
2'-2 1/8"
4'-5 3/8"
4'-5 3/8"
4'-5 3/8"
2'-2 1/8"
12'11" x 9'6"
RESTRAINT FRAME


Contego International, Inc. Assembly Layout
North
13'
Beam #3
W 10x49
Beam #2
W 12x120
Beam #1
W 10x49
52 ¼"
52 ¼"
17"
37"
37"
37"
17"
1" Spacing filled with ceramic insulation
18'
¾" All-thread welded to the beams
(Decking)
(Restraining Frame)
South
(Door)
(Drawing not to scale)

Contego International: Thermocouple Layout

(Thermocouples were inserted half way into the beam)



Four (4) Engineering Thermocouples were also installed, 1 on the middle deck section of each beam, to gain additional information

Contego International, Inc.
Fire Barrier Thickness Map

#3
W 10 X 49

North

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	(mil)
1	47	71	48	70	72	71	71	62	57	55	57	46	59	44	830
2	55	70	54	78	68	73	61	64	76	48	67	46	64	53	877
3	60	70	66	86	73	74	69	72	78	65	79	65	72	61	990
4	49	63	61	73	69	75	71	69	83	62	73	60	76	70	954
5	54	59	80	73	76	73	71	75	85	55	76	65	82	59	983
															4634

66 Avg (44 - 86) Range

#2
W 12 X 120

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	(mil)
1	43	65	43	60	49	62	59	56	66	50	67	53	60	37	770
2	41	50	55	52	58	77	65	60	66	56	68	43	61	55	807
3	47	59	46	58	59	77	68	66	65	69	82	55	70	54	875
4	47	59	44	53	57	75	66	74	52	55	75	46	65	48	816
5	48	65	50	63	48	68	83	66	50	57	69	42	59	44	812
															4080

58 Avg (37 - 82) Range

#1
W 10 X 49

South

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	(mil)
1	53	58	59	56	64	64	53	53	51	41	58	62	52	46	770
2	63	54	53	66	43	55	60	55	53	50	38	58	49	50	747
3	57	58	59	63	45	47	51	55	55	44	54	53	47	48	736
4	58	55	62	69	40	52	58	48	51	43	55	50	65	41	747
5	43	46	49	50	39	48	45	51	165	105	222	125	125	106	1219
															4219

60 Avg (38 - 222) Range

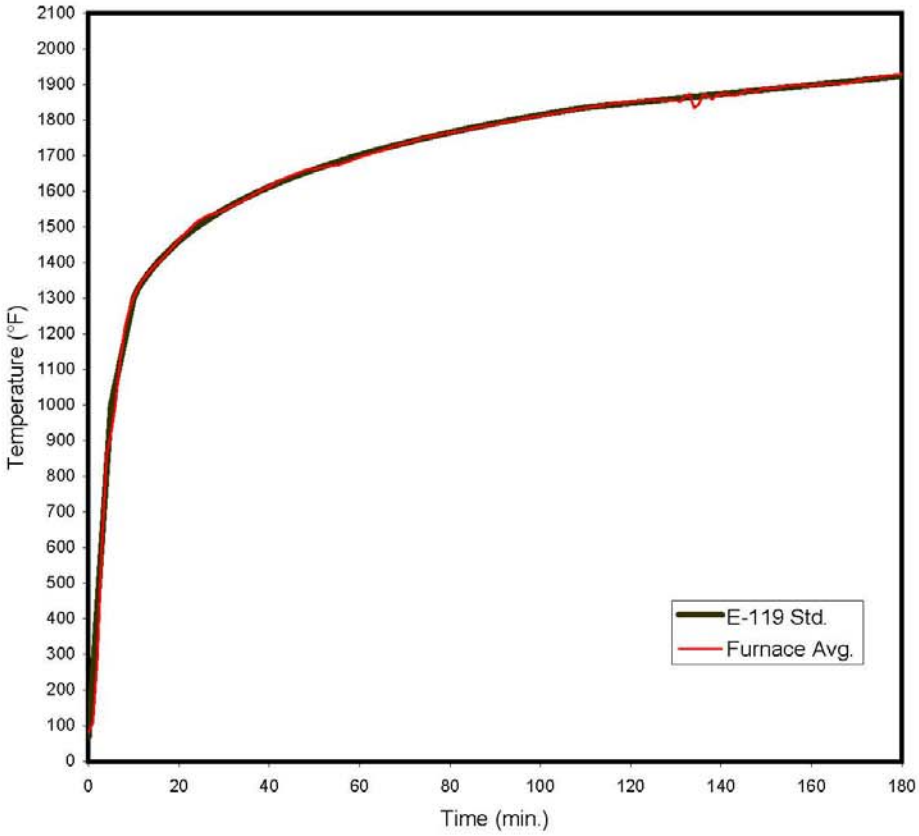
Measurement Pattern

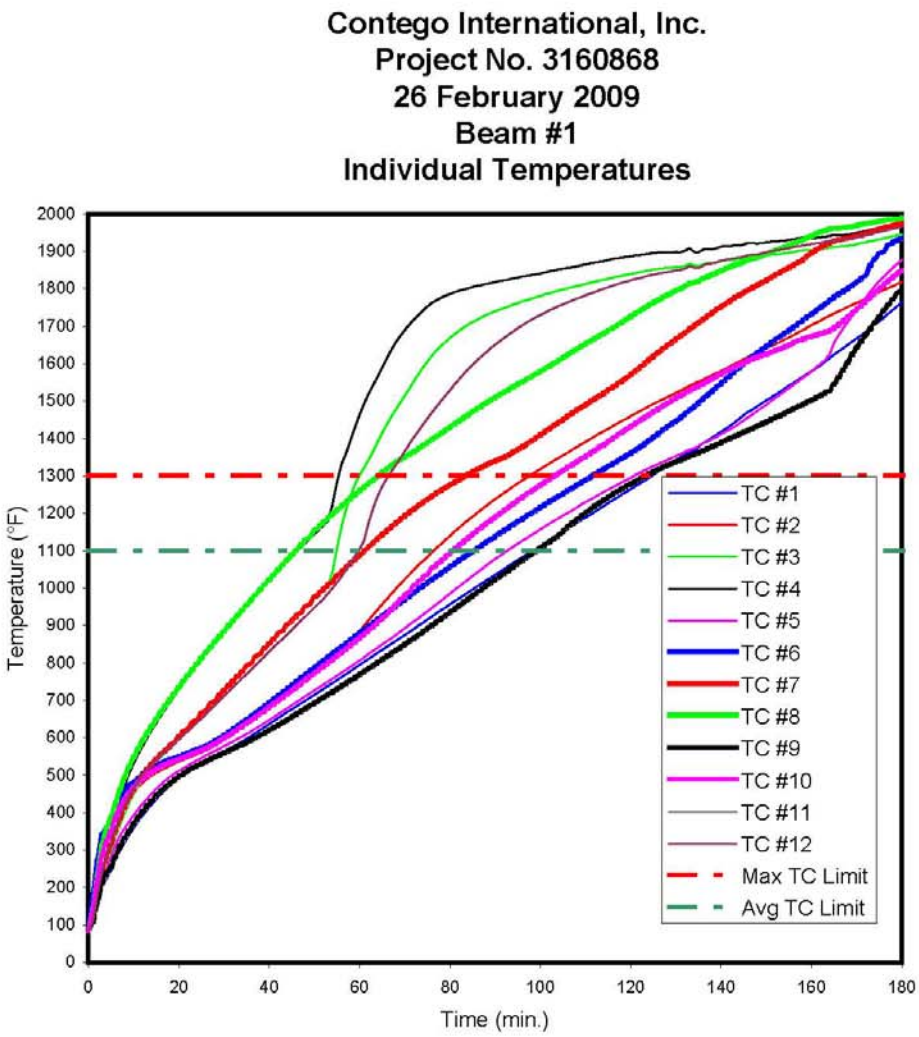
Measurement Locations

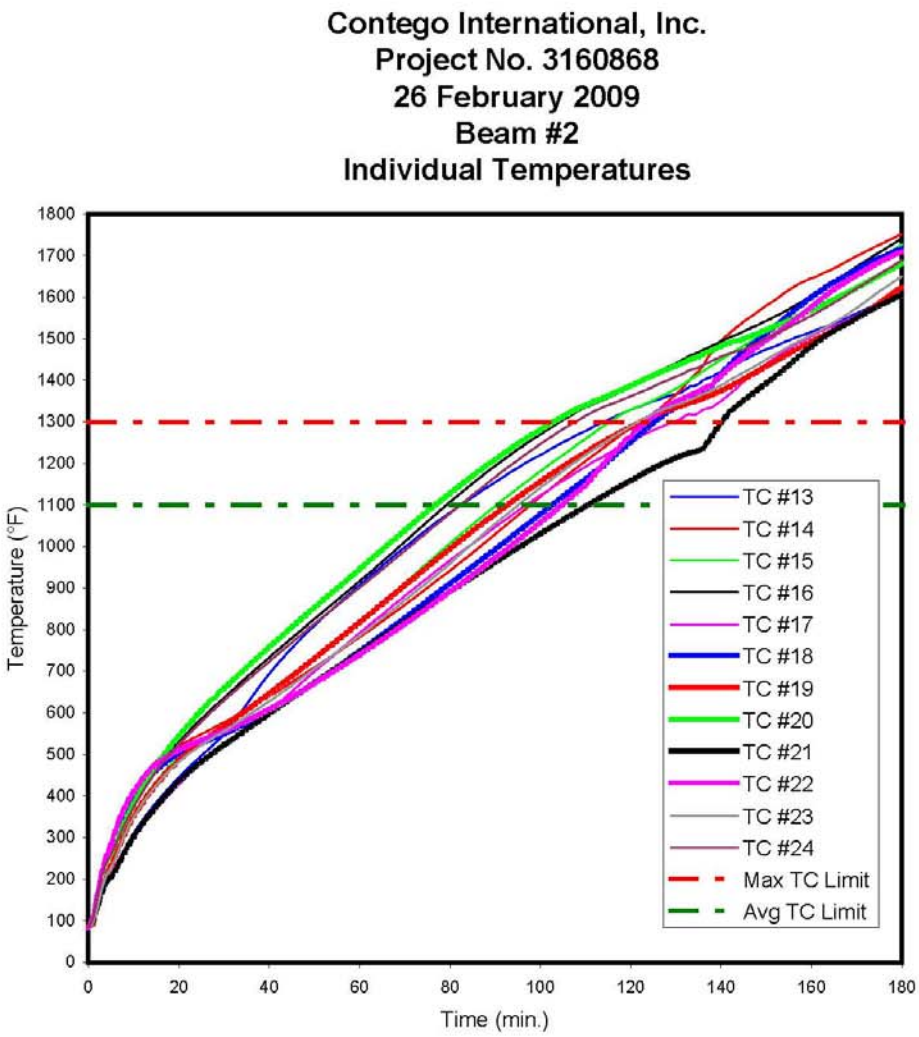
Spacing Between Sections 1 and 2: 12 Inches
Spacing Between Sections 2 and 3: 39 Inches
Spacing Between Sections 3 and 4: 39 Inches
Spacing Between Sections 4 and 5: 12 Inches
Total Beam Length: 156 Inches

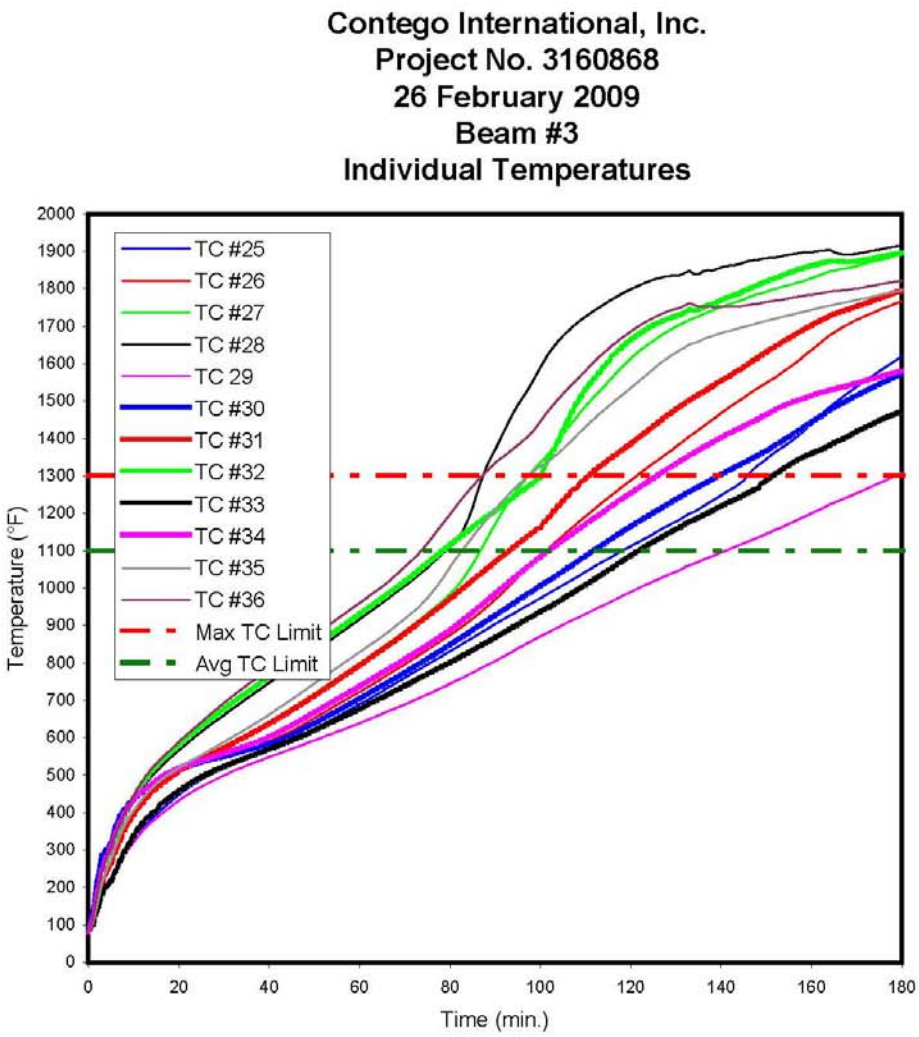
APPENDIX C
Temperature Data

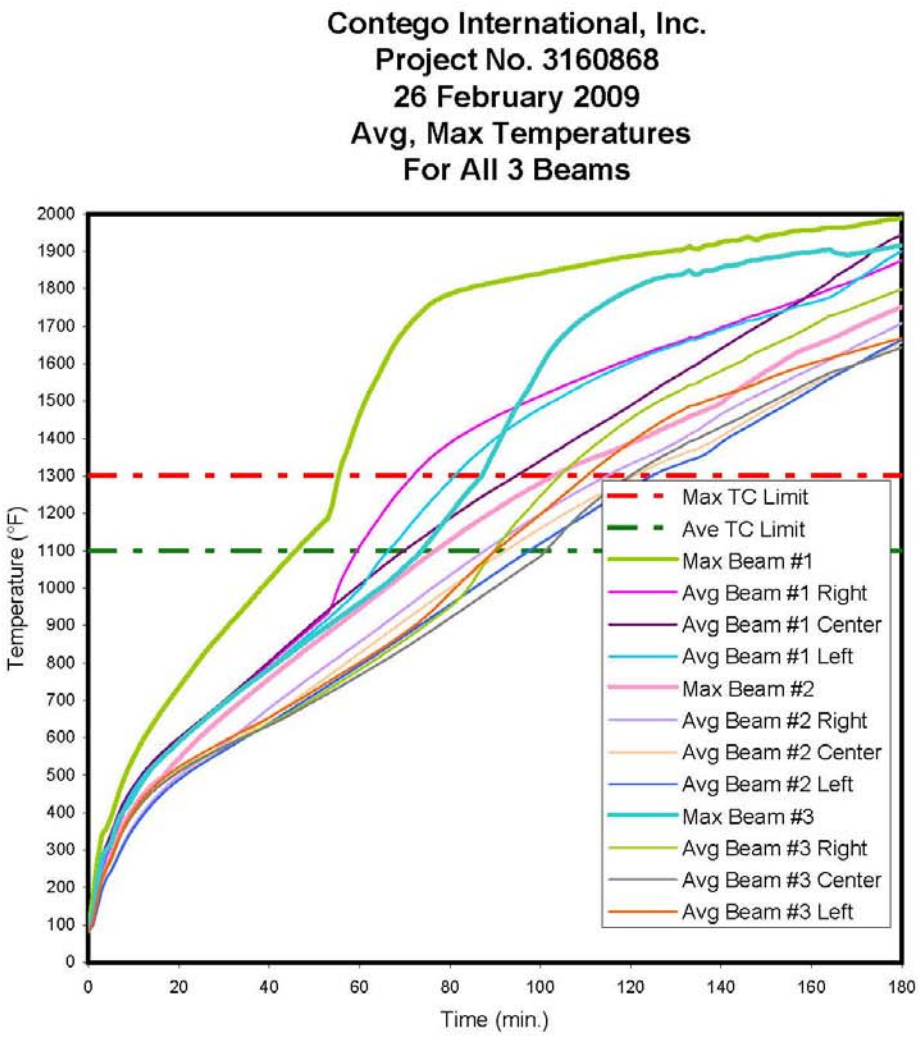
Contego International, Inc.
Project No. 3160868
26 February 2009
Furnace Interior Temperatures




Contego International, Inc.
Project No. 3160868
26 February 2009
Beam #1
Individual Temperatures
Temperature (°F)
Time (min.)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
0
20
40
60
80
100
120
140
160
180
TC #1
TC #2
TC #3
TC #4
TC #5
TC #6
TC #7
TC #8
TC #9
TC #10
TC #11
TC #12
Max TC Limit
Avg TC Limit


Contego International, Inc.
Project No. 3160868
26 February 2009
Beam #2
Individual Temperatures
Temperature (°F)
Time (min.)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
0
20
40
60
80
100
120
140
160
180
TC #13
TC #14
TC #15
TC #16
TC #17
TC #18
TC #19
TC #20
TC #21
TC #22
TC #23
TC #24
Max TC Limit
Avg TC Limit


Contego International, Inc.
Project No. 3160868
26 February 2009
Beam #3
Individual Temperatures
Temperature (°F)
Time (min.)
TC #25
TC #26
TC #27
TC #28
TC 29
TC #30
TC #31
TC #32
TC #33
TC #34
TC #35
TC #36
Max TC Limit
Avg TC Limit
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
0
20
40
60
80
100
120
140
160
180


Contego International, Inc.
Project No. 3160868
26 February 2009
Avg, Max Temperatures
For All 3 Beams
Temperature (°F)
Time (min.)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
0
20
40
60
80
100
120
140
160
180
Max TC Limit
Ave TC Limit
Max Beam #1
Avg Beam #1 Right
Avg Beam #1 Center
Avg Beam #1 Left
Max Beam #2
Avg Beam #2 Right
Avg Beam #2 Center
Avg Beam #2 Left
Max Beam #3
Avg Beam #3 Right
Avg Beam #3 Center
Avg Beam #3 Left

Contego International, Inc. Project No. 3160868 26 February 2009

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	81	0	0	0	82	81	81	81	81
1	254	109	156	755	-79.2892	107	106	110	106	102
2	441	290	1155	3365	-65.6771	285	254	311	286	254
3	627	608	4567	7838	-41.7341	576	514	654	671	550
4	814	858	11197	14176	-21.0135	817	756	896	944	815
5	1000	920	19364	22377	-13.4666	895	838	942	986	894
6	1060	1002	28179	31931	-11.7497	970	914	1023	1068	985
7	1120	1122	37971	42091	-9.7895	1063	1020	1147	1191	1133
8	1180	1216	48932	52851	-7.4154	1140	1129	1238	1291	1247
9	1240	1267	60637	64211	-5.5663	1187	1189	1286	1340	1306
10	1300	1303	72780	76171	-4.4524	1224	1230	1322	1373	1347
11	1328	1331	85250	88631	-3.8144	1254	1264	1349	1400	1372
12	1347	1351	97968	101305	-3.2941	1280	1285	1363	1419	1389
13	1364	1367	110864	114164	-2.8909	1301	1303	1376	1433	1401
14	1381	1381	123912	127194	-2.581	1319	1320	1389	1447	1415
15	1396	1394	137097	140383	-2.3413	1335	1335	1402	1460	1426
16	1410	1407	150408	153720	-2.1549	1350	1349	1414	1470	1437
17	1424	1420	163850	167196	-2.0013	1365	1361	1424	1481	1449
18	1436	1434	177425	180802	-1.8678	1380	1375	1439	1496	1464
19	1448	1449	191147	194531	-1.7398	1396	1391	1453	1507	1478
20	1459	1463	205016	208377	-1.6131	1411	1405	1467	1522	1492
21	1470	1476	219020	222334	-1.4904	1427	1420	1480	1533	1505
22	1480	1490	233159	236396	-1.3693	1444	1436	1493	1546	1518
23	1490	1503	247429	250559	-1.2493	1459	1453	1506	1557	1529
24	1499	1515	261827	264818	-1.1295	1473	1469	1519	1570	1540
25	1508	1522	276321	279169	-1.0201	1483	1477	1524	1575	1547
26	1517	1530	290892	293609	-0.9254	1489	1488	1535	1586	1556
27	1525	1534	305534	308134	-0.8435	1496	1494	1537	1586	1559
28	1533	1537	320203	322740	-0.786	1500	1497	1540	1588	1560
29	1541	1541	334903	337426	-0.7477	1504	1502	1545	1594	1566
30	1549	1547	349660	352188	-0.7179	1513	1508	1550	1600	1569
31	1556	1553	364474	367024	-0.6946	1521	1515	1556	1606	1574
32	1563	1560	379353	381931	-0.675	1529	1523	1563	1611	1579
33	1570	1566	394292	396907	-0.6589	1535	1530	1568	1617	1585
34	1576	1572	409292	411950	-0.6452	1541	1537	1575	1626	1592
35	1583	1579	424358	427058	-0.6322	1550	1547	1582	1630	1596
36	1589	1587	439497	442229	-0.6178	1560	1554	1589	1638	1603
37	1595	1594	454714	457462	-0.6006	1567	1562	1598	1645	1610
38	1601	1602	470004	472754	-0.5818	1575	1570	1606	1653	1618
39	1606	1608	485368	488105	-0.5608	1584	1576	1611	1657	1623
40	1612	1615	500797	503512	-0.5392	1590	1582	1617	1663	1628
41	1617	1621	516289	518974	-0.5174	1596	1589	1625	1670	1636
42	1623	1628	531846	534491	-0.4948	1603	1595	1631	1677	1644
43	1628	1634	547466	550059	-0.4714	1611	1602	1638	1682	1649
44	1633	1639	563145	565680	-0.4481	1619	1609	1643	1685	1654
45	1638	1644	578878	581350	-0.4253	1624	1616	1650	1691	1657
46	1643	1649	594661	597069	-0.4034	1628	1621	1656	1697	1662
47	1648	1654	610491	612837	-0.3827	1635	1627	1661	1702	1667
48	1652	1659	626375	628651	-0.3621	1641	1632	1667	1706	1673
49	1657	1662	642305	644512	-0.3424	1645	1636	1669	1707	1674
50	1661	1662	658245	660417	-0.3289	1645	1639	1671	1708	1674
51	1666	1665	674196	676367	-0.3209	1651	1642	1671	1708	1676
52	1670	1667	690171	692360	-0.3161	1653	1643	1673	1711	1678
53	1674	1670	706177	708395	-0.3132	1657	1646	1676	1713	1681
54	1678	1672	722207	724472	-0.3127	1658	1649	1677	1712	1682
55	1682	1673	738245	740590	-0.3167	1657	1650	1677	1713	1685
56	1686	1676	754306	756748	-0.3228	1661	1655	1680	1715	1687
57	1690	1681	770408	772946	-0.3284	1667	1659	1685	1721	1693
58	1694	1685	786555	789182	-0.3329	1670	1665	1690	1726	1699

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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)
59	1698	1691	802749	805457	-0.3362	1675	1669	1694	1730	1703
60	1701	1695	818994	821768	-0.3375	1683	1674	1700	1735	1706
61	1705	1699	835284	838117	-0.338	1688	1678	1704	1739	1709
62	1709	1703	851610	854501	-0.3383	1694	1683	1709	1741	1711
63	1712	1706	867971	870922	-0.3387	1696	1688	1714	1746	1717
64	1716	1710	884368	887377	-0.3391	1698	1694	1719	1751	1720
65	1719	1714	900801	903867	-0.3391	1704	1696	1723	1755	1723
66	1722	1718	917278	920390	-0.3382	1707	1702	1728	1760	1727
67	1726	1724	933803	936948	-0.3357	1712	1708	1733	1765	1732
68	1729	1728	950378	953538	-0.3314	1716	1712	1738	1769	1738
69	1732	1731	966991	970160	-0.3266	1722	1715	1740	1771	1740
70	1735	1734	983638	986815	-0.322	1725	1718	1743	1774	1743
71	1738	1737	1000311	1003501	-0.3179	1726	1721	1747	1779	1745
72	1742	1741	1017017	1020218	-0.3137	1732	1726	1752	1782	1749
73	1745	1745	1033762	1036966	-0.309	1734	1731	1756	1786	1753
74	1748	1749	1050551	1053744	-0.303	1740	1735	1759	1789	1757
75	1751	1752	1067376	1070552	-0.2967	1743	1738	1762	1792	1759
76	1753	1755	1084227	1087389	-0.2908	1746	1742	1766	1796	1763
77	1756	1757	1101108	1104255	-0.285	1749	1744	1769	1797	1765
78	1759	1759	1118007	1121150	-0.2803	1753	1748	1772	1799	1765
79	1762	1763	1134934	1138073	-0.2759	1756	1751	1774	1803	1769
80	1765	1765	1151885	1155024	-0.2718	1759	1753	1776	1805	1770
81	1768	1766	1168858	1172003	-0.2683	1760	1756	1779	1808	1772
82	1770	1770	1185855	1189009	-0.2653	1764	1760	1782	1810	1775
83	1773	1771	1202877	1206042	-0.2624	1766	1763	1784	1810	1775
84	1776	1773	1219913	1223101	-0.2607	1768	1765	1786	1812	1777
85	1778	1777	1236979	1240187	-0.2587	1771	1768	1790	1816	1781
86	1781	1779	1254074	1257299	-0.2564	1776	1771	1792	1818	1783
87	1783	1781	1271193	1274436	-0.2545	1776	1772	1794	1820	1786
88	1786	1783	1288330	1291599	-0.253	1781	1775	1797	1821	1787
89	1788	1785	1305494	1308786	-0.2516	1782	1777	1799	1824	1788
90	1791	1788	1322676	1325999	-0.2506	1783	1779	1802	1826	1791
91	1793	1790	1339880	1343236	-0.2498	1784	1783	1804	1829	1795
92	1796	1793	1357111	1360497	-0.2489	1790	1783	1805	1830	1797
93	1798	1795	1374365	1377782	-0.2481	1793	1786	1808	1832	1798
94	1800	1797	1391640	1395091	-0.2474	1790	1790	1811	1837	1803
95	1803	1799	1408936	1412424	-0.2469	1794	1791	1812	1837	1804
96	1805	1802	1426258	1429779	-0.2463	1797	1794	1816	1842	1807
97	1807	1805	1443609	1447158	-0.2452	1799	1797	1818	1842	1811
98	1809	1807	1460985	1464559	-0.2441	1802	1799	1819	1844	1811
99	1812	1808	1478377	1481983	-0.2433	1804	1801	1821	1846	1813
100	1814	1811	1495790	1499429	-0.2427	1810	1803	1824	1846	1814
101	1816	1813	1513227	1516897	-0.242	1809	1805	1828	1850	1815
102	1818	1815	1530682	1534387	-0.2415	1813	1807	1829	1853	1819
103	1820	1818	1548165	1551899	-0.2406	1814	1810	1831	1855	1823
104	1823	1820	1565672	1569432	-0.2396	1814	1812	1834	1858	1828
105	1825	1822	1583200	1586986	-0.2386	1818	1814	1834	1860	1829
106	1827	1824	1600750	1604562	-0.2376	1822	1818	1838	1862	1830
107	1829	1827	1618323	1622158	-0.2364	1823	1818	1839	1863	1832
108	1831	1829	1635918	1639774	-0.2352	1824	1821	1841	1866	1835
109	1833	1832	1653537	1657412	-0.2338	1828	1824	1844	1868	1839

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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)
110	1835	1834	1671184	1675069	-0.2319	1831	1828	1847	1869	1839
111	1836	1835	1688850	1692744	-0.23	1832	1829	1847	1871	1841
112	1838	1838	1706534	1710432	-0.2279	1833	1831	1850	1874	1844
113	1839	1839	1724239	1728133	-0.2253	1836	1831	1851	1875	1846
114	1840	1842	1741960	1745846	-0.2226	1839	1834	1854	1877	1848
115	1841	1844	1759707	1763572	-0.2192	1840	1837	1856	1880	1851
116	1843	1846	1777478	1781310	-0.2151	1843	1839	1859	1881	1853
117	1844	1848	1795266	1799061	-0.2109	1845	1840	1860	1883	1855
118	1845	1849	1813071	1816825	-0.2066	1845	1842	1862	1885	1857
119	1846	1850	1830885	1834601	-0.2025	1846	1843	1862	1886	1858
120	1848	1852	1848711	1852389	-0.1986	1849	1845	1865	1887	1858
121	1849	1853	1866552	1870191	-0.1946	1852	1846	1866	1887	1860
122	1850	1854	1884401	1888004	-0.1908	1852	1848	1867	1889	1861
123	1851	1855	1902264	1905831	-0.1871	1854	1850	1870	1891	1862
124	1853	1857	1920145	1923670	-0.1832	1857	1851	1871	1892	1864
125	1854	1857	1938036	1941521	-0.1795	1859	1853	1873	1892	1864
126	1855	1857	1955928	1959385	-0.1764	1858	1853	1871	1892	1863
127	1856	1856	1973812	1977262	-0.1745	1857	1854	1872	1892	1862
128	1858	1856	1991691	1995151	-0.1734	1860	1855	1872	1890	1861
129	1859	1855	2009567	2013052	-0.1731	1861	1857	1874	1890	1858
130	1860	1854	2027436	2030967	-0.1739	1862	1857	1873	1888	1856
131	1861	1851	2045287	2048894	-0.176	1862	1857	1873	1886	1854
132	1863	1865	2063131	2066833	-0.1791	1877	1873	1887	1898	1865
133	1864	1873	2081206	2084785	-0.1717	1893	1889	1900	1905	1871
134	1865	1834	2099081	2102750	-0.1745	1858	1855	1865	1866	1823
135	1866	1843	2116735	2120727	-0.1882	1863	1859	1871	1876	1839
136	1868	1869	2134599	2138717	-0.1925	1886	1882	1894	1900	1868
137	1869	1867	2152634	2156719	-0.1894	1886	1880	1892	1892	1863
138	1870	1859	2170570	2174734	-0.1914	1877	1872	1885	1885	1854
139	1871	1868	2188515	2192761	-0.1936	1886	1881	1893	1896	1864
140	1873	1874	2206541	2210801	-0.1927	1892	1885	1898	1902	1871
141	1874	1873	2224602	2228854	-0.1908	1892	1887	1899	1901	1870
142	1875	1870	2242640	2246919	-0.1904	1891	1885	1895	1898	1866
143	1877	1869	2260651	2264996	-0.1918	1892	1886	1896	1893	1865
144	1878	1872	2278667	2283087	-0.1936	1898	1892	1900	1893	1868
145	1879	1878	2296735	2301189	-0.1936	1905	1901	1907	1901	1876
146	1880	1886	2314869	2319305	-0.1912	1910	1904	1912	1911	1882
147	1882	1879	2333025	2337433	-0.1886	1905	1898	1906	1904	1874
148	1883	1878	2351108	2355573	-0.1895	1904	1896	1902	1901	1876
149	1884	1888	2369258	2373726	-0.1882	1913	1901	1908	1908	1881
150	1885	1888	2387459	2391892	-0.1853	1912	1901	1908	1909	1881
151	1887	1889	2405665	2410070	-0.1828	1911	1901	1910	1910	1882
152	1888	1889	2423875	2428261	-0.1806	1910	1901	1908	1912	1881
153	1889	1891	2442092	2446464	-0.1787	1911	1902	1911	1916	1885
154	1890	1893	2460330	2464680	-0.1765	1912	1904	1912	1919	1888
155	1892	1896	2478592	2482909	-0.1739	1916	1906	1914	1921	1888
156	1893	1898	2496878	2501150	-0.1708	1918	1906	1914	1923	1892
157	1894	1899	2515180	2519404	-0.1677	1919	1908	1917	1923	1891
158	1895	1898	2533485	2537670	-0.1649	1918	1909	1917	1924	1889
159	1897	1896	2551781	2555949	-0.163	1917	1906	1915	1913	1884
160	1898	1896	2570054	2574240	-0.1626	1917	1906	1913	1911	1888
161	1899	1898	2588343	2592544	-0.162	1919	1908	1915	1915	1886
162	1900	1899	2606649	2610860	-0.1613	1920	1909	1916	1918	1885
163	1902	1901	2624970	2629189	-0.1605	1921	1911	1920	1923	1885
164	1903	1903	2643311	2647531	-0.1594	1924	1913	1922	1927	1884
165	1904	1901	2661657	2665885	-0.1586	1918	1909	1916	1928	1894
166	1905	1900	2679988	2684252	-0.1589	1916	1908	1915	1931	1899
167	1907	1901	2698316	2702631	-0.1597	1915	1906	1913	1933	1905
168	1908	1902	2716645	2721023	-0.1609	1919	1907	1915	1934	1904

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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)
169	1909	1905	2734997	2739427	-0.1617	1921	1910	1917	1936	1908
170	1910	1909	2753386	2757845	-0.1617	1923	1913	1921	1941	1913
171	1912	1912	2771804	2776274	-0.161	1926	1916	1924	1945	1917
172	1913	1913	2790244	2794716	-0.16	1928	1917	1925	1947	1917
173	1914	1917	2808708	2813171	-0.1587	1932	1921	1929	1950	1921
174	1915	1919	2827204	2831638	-0.1566	1935	1923	1932	1952	1922
175	1917	1921	2845719	2850118	-0.1543	1937	1925	1933	1955	1924
176	1918	1923	2864253	2868611	-0.1519	1940	1929	1937	1957	1927
177	1919	1925	2882811	2887116	-0.1491	1942	1931	1939	1960	1929
178	1921	1926	2901386	2905633	-0.1462	1943	1932	1940	1962	1931
179	1922	1928	2919972	2924163	-0.1433	1945	1934	1942	1964	1932
180	1923	1930	2938572	2942706	-0.1405	1948	1936	1943	1965	1934

Max Temp
Max Allowed

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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 #12 (°F)	Beam 1 Max (°F)	Beam 1 Avg TC1-4 (°F)	Beam 1 Avg TC5-8 (°F)
0	81	81	81	81	82	-32767	-32767	86	84	86
1	107	102	117	109	123	-32767	-32767	180	119	143
2	253	232	344	313	370	-32767	-32767	274	188	224
3	538	468	658	688	762	-56	-97	342	248	286
4	785	705	919	939	1001	154	79	358	285	314
5	854	816	977	966	1032	238	160	388	313	343
6	937	920	1064	1041	1097	135	100	425	347	377
7	1075	1061	1198	1147	1188	426	259	463	378	408
8	1190	1184	1282	1216	1241	161	111	496	405	432
9	1251	1250	1329	1254	1278	493	306	523	428	453
10	1290	1297	1361	1282	1307	438	249	548	449	471
11	1318	1330	1385	1305	1334	198	153	571	469	488
12	1343	1352	1404	1324	1354	521	319	593	486	505
13	1357	1365	1419	1341	1370	457	285	613	502	519
14	1372	1377	1433	1356	1386	534	393	632	517	533
15	1383	1387	1443	1370	1399	582	365	650	530	546
16	1395	1400	1457	1381	1415	506	287	668	543	557
17	1409	1412	1469	1395	1434	264	189	685	555	569
18	1426	1425	1481	1408	1449	521	277	702	567	580
19	1440	1442	1496	1422	1468	574	344	719	579	590
20	1455	1456	1509	1434	1480	363	155	735	590	600
21	1470	1469	1521	1444	1494	429	269	751	600	610
22	1482	1481	1531	1457	1509	628	411	767	611	620
23	1494	1494	1544	1469	1522	432	215	783	622	630
24	1504	1505	1553	1479	1533	486	213	800	632	640
25	1513	1512	1559	1487	1542	648	393	816	641	649
26	1519	1519	1566	1493	1546	579	450	831	651	659
27	1523	1525	1571	1498	1553	337	187	846	661	669
28	1525	1527	1573	1501	1554	420	238	860	672	679
29	1528	1532	1578	1505	1558	517	397	873	682	689
30	1533	1536	1583	1510	1566	317	208	887	693	699
31	1541	1542	1589	1516	1574	355	225	901	703	710
32	1548	1546	1594	1523	1580	644	444	914	714	720
33	1552	1553	1600	1528	1587	366	216	927	724	730
34	1557	1558	1605	1533	1592	388	216	941	734	740
35	1565	1564	1611	1541	1601	635	428	955	745	751
36	1574	1571	1620	1549	1611	637	393	968	756	761
37	1581	1577	1626	1556	1618	671	458	982	766	772
38	1589	1585	1634	1562	1626	447	274	996	777	783
39	1596	1591	1640	1569	1636	401	244	1009	788	793
40	1600	1598	1649	1576	1644	438	278	1023	798	804
41	1606	1604	1654	1580	1649	524	264	1036	809	815
42	1612	1611	1659	1586	1657	779	488	1050	820	826
43	1619	1615	1664	1592	1664	539	227	1063	830	836
44	1625	1619	1669	1596	1672	633	384	1076	841	847
45	1630	1624	1674	1601	1676	424	240	1089	851	857
46	1635	1629	1679	1605	1679	810	463	1102	861	868
47	1641	1634	1683	1609	1685	436	285	1115	872	879
48	1647	1637	1686	1615	1690	503	293	1128	882	889
49	1652	1640	1689	1617	1692	550	238	1140	893	900
50	1651	1641	1689	1616	1690	718	487	1153	903	910
51	1654	1643	1690	1619	1695	624	415	1164	913	920
52	1657	1645	1693	1620	1699	744	462	1176	923	930
53	1660	1648	1696	1624	1703	666	531	1187	933	940
54	1661	1652	1698	1627	1701	671	407	1223	957	950
55	1661	1655	1700	1627	1702	589	277	1283	992	960
56	1666	1658	1705	1630	1706	601	315	1331	1023	970
57	1672	1661	1708	1635	1712	774	500	1361	1047	980
58	1674	1667	1712	1637	1714	716	468	1395	1070	989

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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 #12 (°F)	Beam 1 Max (°F)	Beam 1 Avg TC1-4 (°F)	Beam 1 Avg TC5-8 (°F)
59	1681	1673	1718	1642	1720	689	564	1431	1092	999
60	1686	1676	1721	1646	1726	707	448	1464	1112	1009
61	1690	1679	1724	1651	1732	492	268	1493	1130	1018
62	1693	1680	1726	1653	1737	798	492	1520	1147	1028
63	1697	1683	1729	1654	1737	587	323	1543	1165	1037
64	1700	1688	1734	1657	1738	466	272	1565	1182	1047
65	1703	1692	1737	1662	1746	702	430	1590	1199	1057
66	1708	1696	1740	1665	1750	741	499	1614	1217	1066
67	1713	1703	1745	1670	1755	817	504	1636	1232	1075
68	1717	1708	1750	1675	1757	716	533	1657	1248	1085
69	1721	1710	1754	1678	1762	809	547	1674	1262	1093
70	1723	1713	1757	1681	1765	471	284	1690	1276	1102
71	1726	1715	1759	1685	1767	802	525	1704	1289	1111
72	1730	1718	1762	1687	1771	586	304	1718	1303	1119
73	1735	1724	1767	1691	1774	700	362	1730	1316	1127
74	1738	1727	1771	1697	1779	697	442	1742	1328	1136
75	1739	1730	1773	1700	1783	701	455	1753	1340	1144
76	1746	1732	1775	1701	1785	712	433	1763	1351	1153
77	1747	1732	1776	1703	1787	756	504	1770	1361	1162
78	1748	1735	1778	1706	1790	765	495	1776	1371	1170
79	1749	1738	1782	1709	1794	866	557	1782	1379	1179
80	1752	1739	1784	1710	1798	754	537	1786	1388	1187
81	1754	1739	1786	1712	1798	609	381	1791	1397	1196
82	1756	1741	1788	1717	1802	631	410	1795	1404	1204
83	1757	1744	1788	1717	1803	665	374	1798	1412	1212
84	1758	1746	1791	1720	1807	835	540	1801	1419	1220
85	1762	1749	1794	1724	1810	527	324	1805	1426	1229
86	1765	1750	1797	1726	1815	603	392	1808	1433	1236
87	1766	1753	1798	1728	1815	574	394	1810	1439	1244
88	1768	1755	1800	1730	1819	859	559	1813	1446	1252
89	1770	1757	1803	1733	1820	701	425	1815	1452	1259
90	1773	1761	1805	1735	1820	756	517	1818	1458	1267
91	1775	1765	1807	1734	1822	750	405	1821	1464	1274
92	1777	1768	1810	1738	1827	734	466	1823	1470	1281
93	1779	1770	1812	1740	1830	710	473	1825	1475	1288
94	1779	1775	1814	1742	1827	664	413	1828	1481	1296
95	1783	1775	1815	1745	1831	789	519	1830	1487	1303
96	1789	1776	1818	1747	1834	837	545	1833	1493	1310
97	1790	1780	1822	1750	1837	839	571	1835	1498	1318
98	1793	1783	1822	1753	1839	690	326	1837	1503	1325
99	1795	1785	1823	1753	1841	774	581	1839	1508	1333
100	1796	1788	1828	1756	1846	782	540	1841	1513	1340
101	1798	1789	1828	1758	1845	719	465	1844	1519	1348
102	1800	1792	1831	1761	1849	816	551	1847	1524	1356
103	1803	1794	1833	1763	1851	774	515	1849	1529	1364
104	1807	1797	1836	1763	1850	622	371	1852	1535	1371
105	1810	1798	1837	1765	1854	700	423	1854	1540	1378
106	1811	1800	1839	1767	1857	714	456	1856	1545	1386
107	1814	1805	1843	1770	1859	819	599	1858	1550	1393
108	1816	1808	1846	1773	1861	648	426	1860	1555	1401
109	1820	1810	1846	1775	1864	632	344	1863	1560	1409

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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 #12 (°F)	Beam 1 Max (°F)	Beam 1 Avg TC1-4 (°F)	Beam 1 Avg TC5-8 (°F)
110	1823	1812	1848	1777	1867	858	601	1865	1565	1416
111	1825	1814	1850	1778	1867	720	496	1868	1570	1423
112	1827	1817	1853	1781	1870	750	517	1870	1575	1430
113	1830	1816	1852	1783	1872	829	597	1872	1580	1437
114	1833	1817	1855	1785	1874	823	616	1874	1584	1444
115	1833	1822	1858	1787	1876	813	634	1877	1589	1451
116	1836	1826	1860	1788	1879	894	614	1880	1595	1459
117	1838	1826	1860	1790	1881	723	513	1881	1599	1465
118	1839	1828	1862	1791	1879	687	430	1884	1604	1473
119	1840	1828	1863	1791	1881	776	495	1885	1608	1481
120	1841	1830	1865	1793	1884	755	578	1887	1613	1488
121	1843	1829	1865	1793	1886	645	415	1889	1617	1496
122	1844	1830	1866	1794	1886	701	466	1890	1622	1504
123	1846	1830	1866	1796	1888	790	525	1892	1626	1512
124	1848	1830	1867	1798	1891	774	512	1894	1631	1520
125	1848	1828	1866	1796	1892	686	472	1896	1636	1528
126	1845	1828	1866	1798	1892	815	650	1897	1640	1536
127	1844	1826	1864	1797	1891	616	408	1898	1644	1544
128	1846	1823	1861	1798	1894	783	523	1900	1648	1551
129	1845	1821	1857	1796	1893	811	592	1901	1651	1558
130	1842	1818	1852	1795	1894	747	528	1903	1655	1565
131	1841	1814	1841	1792	1894	717	464	1903	1659	1572
132	1859	1828	1850	1805	1911	814	560	1907	1664	1580
133	1864	1832	1844	1811	1922	759	550	1914	1670	1588
134	1822	1791	1800	1773	1883	777	514	1907	1669	1594
135	1832	1793	1820	1785	1896	771	560	1906	1672	1601
136	1860	1817	1853	1811	1920	746	522	1913	1679	1610
137	1855	1820	1854	1810	1917	741	428	1917	1683	1617
138	1845	1812	1847	1801	1908	892	612	1917	1686	1625
139	1856	1819	1857	1811	1919	723	480	1921	1691	1632
140	1863	1824	1862	1815	1924	730	496	1925	1697	1640
141	1864	1824	1858	1813	1923	719	500	1928	1701	1648
142	1861	1820	1849	1809	1921	703	484	1929	1705	1655
143	1862	1820	1845	1808	1922	878	608	1930	1709	1663
144	1869	1821	1842	1810	1927	718	447	1931	1714	1670
145	1874	1826	1843	1815	1933	796	552	1935	1719	1678
146	1880	1834	1860	1823	1940	727	508	1939	1724	1686
147	1876	1835	1857	1799	1933	864	645	1934	1728	1692
148	1876	1835	1862	1795	1932	713	488	1931	1731	1699
149	1884	1844	1879	1816	1943	857	579	1937	1735	1706
150	1882	1844	1883	1822	1941	884	614	1940	1739	1713
151	1881	1845	1885	1825	1940	772	482	1943	1743	1721
152	1883	1845	1886	1824	1939	755	526	1945	1747	1728
153	1884	1847	1889	1827	1940	883	616	1946	1751	1735
154	1888	1849	1890	1830	1941	866	681	1948	1755	1742
155	1891	1852	1893	1834	1945	851	644	1951	1760	1749
156	1892	1855	1895	1837	1947	790	570	1954	1764	1756
157	1893	1855	1896	1836	1947	858	589	1955	1769	1764
158	1893	1855	1896	1836	1947	950	681	1957	1773	1771
159	1892	1855	1894	1834	1945	782	488	1956	1777	1780
160	1891	1855	1897	1837	1946	788	571	1957	1781	1787
161	1895	1857	1899	1839	1949	777	560	1958	1785	1796
162	1896	1857	1900	1841	1950	821	595	1960	1789	1804
163	1897	1861	1902	1843	1951	806	549	1962	1794	1811
164	1897	1863	1904	1845	1953	702	480	1963	1799	1819
165	1885	1862	1907	1847	1948	905	628	1964	1803	1831
166	1879	1860	1904	1846	1946	882	608	1963	1808	1839
167	1879	1858	1905	1848	1946	775	467	1963	1811	1846
168	1879	1857	1905	1850	1949	915	668	1965	1816	1853

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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 #12 (°F)	Beam 1 Max (°F)	Beam 1 Avg TC1-4 (°F)	Beam 1 Avg TC5-8 (°F)
169	1884	1860	1911	1855	1952	916	722	1967	1820	1861
170	1889	1863	1914	1856	1955	798	585	1969	1825	1868
171	1892	1865	1916	1858	1956	903	666	1972	1830	1876
172	1895	1866	1917	1861	1958	831	547	1974	1835	1884
173	1898	1869	1919	1864	1962	747	542	1976	1840	1895
174	1900	1871	1923	1867	1965	769	446	1978	1845	1905
175	1901	1873	1923	1869	1967	910	686	1980	1850	1913
176	1904	1872	1925	1871	1970	820	610	1983	1855	1920
177	1904	1873	1926	1873	1971	818	598	1985	1860	1928
178	1905	1874	1927	1876	1972	819	578	1986	1865	1934
179	1907	1875	1927	1876	1974	890	581	1987	1871	1939
180	1910	1876	1928	1878	1977	868	605	1990	1875	1945
Max Temp								1990	1875	1945
Max Allow								1300	1100	1100

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Time (min)	Beam 1 Avg TC9-12 (°F)	Beam 1 TC #1 (°F)	Beam 1 TC #2 (°F)	Beam 1 TC #3 (°F)	Beam 1 TC #4 (°F)	Beam 1 TC #5 (°F)	Beam 1 TC #6 (°F)	Beam 1 TC #7 (°F)	Beam 1 TC #8 (°F)	Beam 1 TC #9 (°F)
0	85	84	84	83	83	86	86	86	86	85
1	122	114	133	102	126	137	180	111	143	110
2	196	163	217	160	211	206	274	179	236	162
3	258	202	285	217	287	250	342	238	314	211
4	298	224	317	264	334	256	358	285	358	238
5	325	246	346	297	363	280	388	317	388	255
6	360	275	377	335	402	312	418	354	425	283
7	391	299	403	369	439	339	442	387	463	310
8	418	321	424	399	475	357	458	416	496	332
9	441	341	441	426	505	376	473	440	523	351
10	461	359	456	450	532	393	481	462	548	370
11	479	377	469	472	557	409	491	482	571	387
12	496	393	481	492	579	424	502	500	593	404
13	510	408	491	509	600	437	510	516	613	418
14	524	422	500	524	621	451	518	530	632	432
15	536	436	507	537	640	464	525	543	650	445
16	548	450	513	549	659	475	531	555	668	456
17	559	463	519	562	677	486	537	566	685	468
18	570	474	525	574	695	496	542	578	702	478
19	580	485	531	586	713	504	545	590	719	488
20	591	493	536	599	731	511	550	602	735	496
21	600	501	541	611	748	518	554	615	751	504
22	611	509	546	624	766	526	559	627	767	512
23	621	516	551	636	783	533	564	639	782	519
24	630	522	556	648	800	540	569	651	798	525
25	640	528	561	660	816	546	573	664	813	531
26	649	534	567	673	831	553	578	676	828	537
27	659	540	573	685	846	559	584	689	842	543
28	669	548	580	698	860	565	591	701	857	549
29	678	555	587	711	873	571	598	714	871	554
30	688	563	596	724	887	578	606	727	885	560
31	698	570	604	737	901	584	614	740	900	565
32	708	577	613	750	914	590	623	752	913	571
33	717	583	621	763	927	597	631	765	927	577
34	727	590	630	776	941	603	640	777	941	582
35	737	597	639	788	954	610	648	790	955	588
36	747	605	648	801	968	617	657	802	968	594
37	757	613	657	814	981	625	666	815	982	600
38	767	621	666	826	994	632	675	827	996	606
39	777	629	675	839	1007	640	684	839	1009	613
40	787	637	684	851	1021	647	693	852	1023	620
41	797	645	693	863	1034	655	703	864	1036	627
42	807	653	703	876	1047	663	712	877	1050	634
43	817	661	712	888	1060	671	721	889	1063	641
44	827	669	722	900	1072	679	731	901	1076	648
45	838	676	731	912	1085	687	740	913	1089	656
46	848	684	740	924	1097	695	749	925	1102	663
47	858	692	750	937	1109	703	759	937	1115	670
48	868	699	759	948	1121	711	768	949	1128	678
49	878	707	769	961	1133	719	778	961	1140	685
50	888	715	778	973	1145	727	787	974	1153	693
51	898	723	787	984	1156	735	797	985	1164	700
52	908	731	797	996	1168	742	806	997	1176	708
53	918	739	806	1007	1179	750	815	1008	1187	715
54	929	746	815	1043	1223	758	825	1020	1198	723
55	940	754	825	1107	1283	766	834	1032	1209	730
56	951	762	835	1164	1331	774	843	1043	1219	738
57	962	770	845	1211	1361	782	852	1055	1230	746
58	974	778	858	1247	1395	790	861	1066	1240	753

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Time (min)	Beam 1 Avg TC9-12 (°F)	Beam 1 TC #1 (°F)	Beam 1 TC #2 (°F)	Beam 1 TC #3 (°F)	Beam 1 TC #4 (°F)	Beam 1 TC #5 (°F)	Beam 1 TC #6 (°F)	Beam 1 TC #7 (°F)	Beam 1 TC #8 (°F)	Beam 1 TC #9 (°F)
59	986	787	871	1278	1431	798	871	1077	1250	761
60	998	795	885	1302	1464	807	880	1088	1260	769
61	1011	803	900	1322	1493	815	889	1099	1270	777
62	1031	811	914	1343	1520	824	898	1110	1280	785
63	1049	819	929	1367	1543	832	907	1121	1289	793
64	1066	827	943	1391	1565	841	916	1132	1299	801
65	1082	835	957	1415	1590	850	925	1143	1309	809
66	1096	843	971	1438	1614	858	934	1153	1318	817
67	1108	851	984	1458	1636	866	943	1163	1327	825
68	1122	859	998	1477	1657	875	952	1174	1337	834
69	1136	867	1011	1496	1674	884	961	1183	1344	841
70	1151	875	1024	1515	1690	893	970	1193	1351	850
71	1166	883	1036	1533	1704	902	979	1203	1358	858
72	1181	891	1049	1553	1718	911	988	1212	1365	866
73	1195	900	1061	1572	1730	919	997	1220	1373	874
74	1209	907	1072	1590	1742	929	1005	1229	1381	883
75	1222	916	1084	1606	1753	938	1014	1237	1388	892
76	1236	924	1096	1621	1763	947	1023	1245	1397	900
77	1249	933	1107	1635	1770	957	1031	1254	1405	909
78	1261	941	1118	1647	1776	966	1040	1261	1413	918
79	1274	948	1129	1658	1782	976	1048	1269	1422	926
80	1287	957	1140	1669	1786	985	1057	1276	1430	935
81	1300	965	1151	1679	1791	995	1065	1283	1439	944
82	1313	973	1161	1688	1795	1004	1074	1290	1447	953
83	1325	980	1172	1696	1798	1014	1082	1297	1455	962
84	1337	988	1182	1704	1801	1023	1090	1304	1463	971
85	1348	996	1191	1711	1805	1033	1098	1311	1472	980
86	1359	1004	1201	1717	1808	1042	1106	1317	1479	988
87	1370	1012	1211	1724	1810	1051	1114	1323	1487	997
88	1380	1020	1220	1730	1813	1060	1123	1329	1495	1006
89	1390	1028	1229	1735	1815	1069	1130	1335	1502	1014
90	1400	1036	1238	1740	1818	1078	1138	1340	1510	1023
91	1409	1044	1246	1745	1821	1086	1147	1345	1517	1031
92	1418	1051	1255	1749	1823	1094	1154	1350	1524	1040
93	1427	1059	1263	1753	1825	1103	1162	1356	1531	1048
94	1435	1067	1272	1758	1828	1111	1170	1364	1538	1057
95	1443	1075	1280	1762	1830	1119	1178	1370	1545	1065
96	1451	1082	1288	1767	1833	1127	1185	1377	1551	1074
97	1459	1090	1296	1770	1835	1134	1193	1385	1558	1082
98	1466	1097	1303	1774	1837	1142	1200	1393	1565	1090
99	1473	1105	1311	1778	1839	1149	1208	1401	1572	1098
100	1480	1112	1318	1781	1841	1157	1216	1409	1579	1107
101	1487	1120	1326	1785	1844	1165	1223	1418	1586	1115
102	1494	1128	1333	1788	1847	1172	1231	1426	1594	1124
103	1500	1135	1341	1792	1849	1180	1238	1435	1601	1132
104	1507	1143	1348	1795	1852	1187	1245	1443	1608	1140
105	1514	1151	1355	1798	1854	1194	1252	1450	1616	1151
106	1521	1159	1362	1801	1856	1201	1260	1459	1623	1162
107	1527	1166	1370	1804	1858	1208	1267	1467	1631	1173
108	1534	1174	1377	1807	1860	1215	1275	1475	1638	1182
109	1540	1182	1384	1810	1863	1223	1282	1483	1646	1192

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Time (min)	Beam 1 Avg TC9-12 (°F)	Beam 1 TC #1 (°F)	Beam 1 TC #2 (°F)	Beam 1 TC #3 (°F)	Beam 1 TC #4 (°F)	Beam 1 TC #5 (°F)	Beam 1 TC #6 (°F)	Beam 1 TC #7 (°F)	Beam 1 TC #8 (°F)	Beam 1 TC #9 (°F)
110	1547	1189	1391	1813	1865	1230	1289	1490	1653	1201
111	1553	1196	1398	1816	1868	1236	1296	1498	1660	1210
112	1559	1204	1405	1819	1870	1243	1304	1506	1667	1219
113	1565	1212	1413	1822	1872	1250	1311	1513	1674	1227
114	1571	1219	1419	1824	1874	1257	1318	1521	1681	1235
115	1576	1227	1426	1827	1877	1263	1325	1529	1688	1242
116	1582	1235	1433	1830	1880	1270	1332	1537	1695	1251
117	1588	1242	1440	1833	1881	1276	1339	1544	1702	1258
118	1594	1250	1447	1835	1884	1283	1347	1553	1710	1265
119	1599	1257	1453	1838	1885	1289	1354	1561	1718	1272
120	1604	1265	1460	1840	1887	1295	1361	1571	1726	1279
121	1609	1272	1466	1842	1889	1302	1369	1580	1734	1285
122	1614	1280	1473	1845	1890	1308	1376	1590	1741	1292
123	1619	1287	1479	1847	1892	1314	1385	1600	1749	1298
124	1624	1295	1486	1849	1894	1320	1394	1610	1756	1305
125	1629	1303	1492	1852	1896	1326	1403	1620	1764	1311
126	1633	1311	1498	1853	1897	1331	1412	1629	1770	1317
127	1638	1319	1504	1855	1898	1337	1422	1639	1777	1323
128	1642	1326	1510	1856	1898	1342	1430	1648	1783	1328
129	1645	1334	1516	1857	1898	1348	1439	1656	1789	1333
130	1650	1342	1522	1858	1899	1353	1446	1665	1795	1338
131	1653	1350	1528	1859	1898	1358	1455	1674	1800	1342
132	1657	1359	1534	1861	1902	1365	1465	1682	1807	1347
133	1664	1364	1540	1867	1909	1370	1475	1692	1815	1353
134	1664	1367	1546	1863	1899	1374	1484	1701	1816	1357
135	1666	1376	1552	1861	1898	1380	1494	1709	1820	1362
136	1672	1388	1557	1865	1905	1387	1506	1718	1828	1367
137	1678	1394	1563	1869	1907	1392	1516	1727	1833	1373
138	1681	1402	1569	1868	1906	1398	1526	1736	1838	1378
139	1685	1410	1575	1870	1909	1404	1537	1745	1843	1383
140	1690	1418	1581	1874	1913	1412	1547	1752	1849	1389
141	1695	1426	1587	1876	1915	1418	1558	1760	1854	1395
142	1699	1434	1593	1877	1915	1425	1568	1768	1859	1400
143	1702	1443	1600	1878	1916	1432	1579	1777	1864	1406
144	1706	1453	1606	1879	1916	1440	1590	1783	1867	1411
145	1710	1462	1612	1881	1919	1449	1600	1790	1872	1417
146	1715	1471	1618	1885	1923	1457	1610	1797	1878	1422
147	1716	1478	1624	1887	1923	1465	1619	1803	1881	1427
148	1718	1486	1630	1886	1921	1474	1628	1810	1884	1433
149	1723	1494	1635	1888	1923	1482	1637	1816	1889	1439
150	1727	1502	1641	1889	1924	1490	1646	1822	1893	1444
151	1731	1509	1647	1891	1926	1500	1655	1830	1898	1450
152	1735	1517	1652	1892	1926	1509	1664	1837	1903	1456
153	1738	1525	1658	1893	1928	1517	1672	1844	1907	1461
154	1741	1533	1664	1895	1929	1526	1680	1850	1911	1466
155	1746	1541	1670	1897	1931	1535	1689	1857	1916	1473
156	1750	1548	1676	1899	1933	1543	1697	1863	1921	1479
157	1754	1556	1683	1901	1935	1552	1706	1870	1926	1485
158	1757	1564	1689	1903	1937	1561	1715	1876	1930	1490
159	1760	1572	1696	1904	1937	1570	1724	1887	1937	1497
160	1763	1580	1703	1904	1935	1579	1732	1896	1941	1502
161	1767	1588	1709	1905	1936	1590	1741	1904	1947	1509
162	1770	1596	1715	1906	1938	1600	1751	1911	1952	1515
163	1774	1606	1722	1908	1939	1610	1759	1917	1956	1522
164	1777	1615	1728	1910	1942	1624	1769	1923	1960	1529
165	1783	1624	1734	1912	1943	1656	1778	1928	1961	1545
166	1791	1633	1740	1913	1944	1676	1786	1931	1962	1564
167	1798	1641	1746	1914	1944	1694	1793	1934	1963	1583
168	1806	1650	1752	1915	1945	1711	1801	1936	1965	1604

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Time (min)	Beam 1 Avg TC9-12 (°F)	Beam 1 TC #1 (°F)	Beam 1 TC #2 (°F)	Beam 1 TC #3 (°F)	Beam 1 TC #4 (°F)	Beam 1 TC #5 (°F)	Beam 1 TC #6 (°F)	Beam 1 TC #7 (°F)	Beam 1 TC #8 (°F)	Beam 1 TC #9 (°F)
169	1815	1659	1757	1917	1947	1728	1809	1938	1967	1624
170	1824	1668	1763	1920	1950	1745	1818	1941	1969	1643
171	1832	1676	1768	1922	1952	1761	1827	1944	1972	1660
172	1840	1685	1774	1925	1954	1776	1838	1947	1974	1677
173	1848	1695	1779	1927	1957	1792	1862	1950	1976	1693
174	1856	1704	1786	1930	1960	1807	1880	1955	1978	1709
175	1864	1713	1791	1933	1963	1821	1893	1959	1980	1725
176	1872	1723	1797	1935	1965	1833	1902	1963	1983	1742
177	1880	1734	1802	1938	1967	1845	1916	1966	1985	1758
178	1888	1744	1807	1941	1969	1857	1925	1969	1986	1773
179	1895	1754	1813	1943	1972	1867	1930	1972	1987	1787
180	1901	1764	1818	1945	1974	1877	1937	1975	1990	1799
Max Temp	1901	1764	1818	1945	1974	1877	1937	1975	1990	1799
Max Allow	1100	1300	1300	1300	1300	1300	1300	1300	1300	1300

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Time (min)	Beam 1 TC #10 (°F)	Beam 1 TC #11 (°F)	Beam 1 TC #12 (°F)	Eng TC (°F)	Beam 2 Max (°F)	Beam 2 Avg TC13-16 (°F)	Beam 2 Avg TC17-20 (°F)	Beam 2 Avg TC21-24 (°F)	Beam 2 TC #13 (°F)	Beam 2 TC #14 (°F)
0	85	84	84	85	84	84	84	83	84	84
1	138	109	129	85	105	99	101	100	97	104
2	223	180	217	85	164	145	150	146	132	161
3	286	241	292	85	219	194	198	194	172	219
4	324	287	343	85	256	226	228	225	194	256
5	351	320	373	85	283	244	246	244	204	282
6	387	358	411	86	320	272	271	268	224	320
7	414	391	450	86	351	300	297	295	249	351
8	435	419	484	86	375	324	319	319	271	375
9	453	444	514	86	395	346	340	340	292	395
10	468	466	540	87	413	365	358	359	310	413
11	480	485	563	88	431	383	375	376	327	431
12	492	502	585	90	447	400	391	392	342	447
13	501	517	605	92	460	415	406	407	357	460
14	509	530	624	94	473	430	420	421	371	473
15	516	542	642	96	483	443	433	434	384	483
16	522	553	660	99	492	455	445	446	397	492
17	528	563	677	102	504	467	458	458	409	501
18	534	574	694	106	518	478	469	469	422	508
19	538	585	710	109	532	488	480	479	433	515
20	543	596	727	113	544	498	490	488	445	521
21	547	607	743	117	557	507	500	497	456	526
22	552	618	760	122	569	516	510	506	466	532
23	557	629	777	126	581	525	518	514	477	538
24	562	641	793	131	594	533	527	522	487	543
25	567	652	809	136	605	542	536	530	497	549
26	572	664	824	142	617	550	544	537	507	554
27	578	676	839	147	628	558	552	545	517	560
28	584	688	853	153	638	567	559	552	527	566
29	591	700	868	159	649	575	567	559	537	572
30	599	712	882	165	659	583	575	566	549	577
31	606	723	896	171	669	592	582	574	561	583
32	614	736	910	177	679	602	590	580	575	589
33	622	747	923	183	689	612	598	588	590	596
34	630	759	937	189	699	621	606	595	605	602
35	639	771	950	194	709	631	613	603	620	608
36	647	783	964	199	719	641	621	610	636	614
37	655	795	977	204	729	650	629	617	651	620
38	664	806	990	209	738	660	637	624	666	627
39	672	818	1003	214	748	670	645	632	680	633
40	681	830	1016	219	758	679	653	639	694	640
41	690	842	1029	224	768	688	662	647	707	646
42	699	854	1042	230	777	698	670	655	720	653
43	708	865	1055	236	787	707	678	662	732	660
44	717	877	1067	242	797	716	687	670	744	667
45	726	889	1080	248	806	725	695	677	756	674
46	735	901	1092	255	815	734	704	685	767	681
47	745	913	1104	261	825	743	713	693	778	688
48	754	924	1116	268	835	752	722	701	790	695
49	763	936	1128	275	844	761	730	708	800	702
50	772	948	1139	282	853	769	739	716	810	709
51	782	960	1151	288	862	778	747	724	821	716
52	791	972	1161	295	872	787	756	731	831	723
53	800	985	1172	302	881	795	765	739	840	731
54	809	1000	1183	308	890	804	773	747	850	738
55	819	1015	1194	315	899	813	782	755	860	745
56	828	1031	1205	322	908	821	791	762	869	752
57	837	1049	1217	329	918	830	800	770	879	760
58	847	1067	1228	336	927	838	808	778	888	767

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Time (min)	Beam 1 TC #10 (°F)	Beam 1 TC #11 (°F)	Beam 1 TC #12 (°F)	Eng TC (°F)	Beam 2 Max (°F)	Beam 2 Avg TC13-16 (°F)	Beam 2 Avg TC17-20 (°F)	Beam 2 Avg TC21-24 (°F)	Beam 2 TC #13 (°F)	Beam 2 TC #14 (°F)
59	857	1086	1239	342	936	847	817	786	898	775
60	867	1104	1251	349	946	856	826	793	907	782
61	876	1128	1262	355	955	865	835	801	917	790
62	887	1175	1275	362	964	873	843	809	926	797
63	897	1214	1291	369	974	882	852	817	936	805
64	908	1246	1308	375	983	891	861	825	944	812
65	919	1272	1326	382	992	900	870	833	954	820
66	931	1293	1341	388	1002	909	879	841	963	828
67	943	1311	1354	395	1011	918	888	849	972	836
68	956	1329	1369	402	1020	927	896	857	981	844
69	968	1347	1386	407	1030	937	905	865	990	852
70	980	1366	1407	414	1039	946	914	873	999	860
71	992	1385	1428	420	1048	955	923	881	1007	868
72	1004	1403	1449	427	1058	964	931	890	1016	876
73	1016	1420	1468	433	1067	973	940	898	1025	884
74	1028	1437	1488	439	1076	982	949	906	1033	892
75	1039	1453	1505	445	1085	991	958	914	1042	901
76	1051	1469	1522	451	1094	1000	966	923	1050	909
77	1062	1485	1539	457	1102	1009	975	931	1059	918
78	1072	1500	1555	463	1111	1018	984	939	1066	926
79	1083	1515	1573	469	1120	1026	992	947	1074	934
80	1093	1529	1591	475	1128	1035	1000	956	1082	942
81	1104	1544	1609	481	1137	1043	1009	964	1089	951
82	1114	1558	1627	487	1145	1052	1017	972	1097	959
83	1124	1572	1643	493	1154	1060	1026	981	1104	968
84	1134	1585	1657	498	1162	1069	1034	989	1112	976
85	1144	1597	1672	504	1170	1077	1042	998	1119	985
86	1153	1609	1685	510	1178	1086	1050	1006	1126	994
87	1163	1620	1698	516	1186	1094	1058	1014	1134	1003
88	1172	1630	1711	521	1194	1103	1066	1023	1141	1012
89	1181	1641	1723	528	1202	1111	1074	1031	1148	1021
90	1190	1651	1734	533	1209	1119	1082	1039	1155	1030
91	1199	1660	1744	539	1217	1127	1090	1048	1162	1039
92	1208	1669	1755	545	1225	1136	1098	1056	1169	1048
93	1217	1678	1763	550	1232	1144	1106	1064	1176	1057
94	1225	1686	1771	557	1240	1152	1114	1072	1183	1066
95	1234	1695	1778	562	1247	1160	1122	1080	1189	1075
96	1243	1702	1785	568	1254	1168	1130	1088	1196	1084
97	1251	1710	1791	574	1261	1176	1137	1096	1203	1093
98	1259	1717	1798	579	1268	1183	1145	1104	1209	1102
99	1267	1724	1803	584	1274	1191	1152	1111	1215	1111
100	1275	1730	1808	590	1281	1198	1160	1120	1220	1120
101	1283	1736	1813	595	1288	1205	1167	1127	1226	1129
102	1291	1743	1818	600	1294	1213	1174	1135	1233	1137
103	1299	1748	1822	605	1301	1220	1182	1142	1239	1146
104	1307	1754	1826	609	1307	1228	1189	1150	1245	1155
105	1314	1759	1830	614	1313	1235	1197	1158	1251	1164
106	1322	1764	1834	618	1319	1242	1203	1165	1256	1172
107	1329	1769	1838	623	1325	1249	1210	1173	1262	1181
108	1337	1774	1842	627	1331	1256	1217	1180	1268	1189
109	1345	1778	1846	632	1336	1263	1224	1188	1273	1197

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Time (min)	Beam 1 TC #10 (°F)	Beam 1 TC #11 (°F)	Beam 1 TC #12 (°F)	Eng TC (°F)	Beam 2 Max (°F)	Beam 2 Avg TC13-16 (°F)	Beam 2 Avg TC17-20 (°F)	Beam 2 Avg TC21-24 (°F)	Beam 2 TC #13 (°F)	Beam 2 TC #14 (°F)
110	1352	1783	1850	636	1340	1270	1230	1195	1278	1206
111	1360	1787	1854	640	1345	1276	1237	1203	1284	1214
112	1368	1791	1857	644	1350	1283	1244	1211	1290	1222
113	1376	1796	1860	648	1354	1289	1249	1219	1295	1230
114	1383	1800	1864	652	1358	1295	1256	1227	1300	1238
115	1391	1804	1867	656	1363	1302	1263	1234	1305	1246
116	1400	1808	1870	660	1368	1308	1269	1241	1310	1254
117	1408	1812	1874	664	1373	1314	1276	1248	1315	1262
118	1416	1816	1877	667	1377	1321	1282	1255	1320	1270
119	1424	1819	1879	671	1382	1326	1288	1262	1324	1278
120	1432	1823	1883	675	1387	1332	1295	1269	1329	1285
121	1440	1826	1885	678	1392	1338	1302	1276	1333	1293
122	1448	1829	1887	682	1397	1343	1308	1283	1337	1300
123	1455	1832	1890	685	1402	1348	1314	1289	1341	1307
124	1463	1836	1893	688	1407	1354	1320	1296	1346	1314
125	1471	1838	1895	691	1413	1359	1326	1302	1350	1321
126	1478	1841	1897	694	1419	1364	1332	1308	1353	1327
127	1486	1843	1898	697	1425	1370	1337	1314	1357	1336
128	1493	1845	1900	700	1431	1377	1343	1319	1361	1347
129	1500	1847	1901	702	1436	1383	1347	1323	1364	1356
130	1508	1850	1903	705	1441	1389	1352	1328	1367	1366
131	1514	1851	1903	706	1447	1395	1357	1332	1370	1377
132	1521	1854	1907	709	1452	1403	1362	1337	1377	1388
133	1528	1861	1914	711	1459	1412	1367	1342	1385	1401
134	1534	1857	1907	712	1463	1417	1369	1345	1386	1412
135	1540	1856	1906	714	1467	1424	1373	1349	1391	1422
136	1546	1862	1913	714	1473	1433	1380	1355	1400	1435
137	1553	1867	1917	715	1478	1442	1385	1362	1405	1454
138	1560	1868	1917	715	1483	1449	1391	1370	1409	1468
139	1566	1871	1921	714	1488	1457	1398	1380	1415	1481
140	1572	1875	1925	711	1494	1465	1406	1389	1421	1494
141	1579	1878	1928	707	1505	1472	1413	1397	1427	1505
142	1585	1880	1929	696	1515	1479	1421	1405	1432	1515
143	1591	1882	1930	680	1524	1485	1428	1412	1437	1524
144	1597	1883	1931	669	1532	1491	1435	1419	1443	1532
145	1602	1886	1935	653	1541	1498	1442	1425	1449	1541
146	1608	1890	1939	633	1549	1504	1449	1432	1455	1549
147	1613	1891	1934	611	1556	1510	1456	1439	1460	1556
148	1617	1891	1931	619	1564	1516	1463	1446	1464	1564
149	1622	1895	1937	608	1572	1522	1470	1454	1470	1572
150	1625	1898	1940	625	1580	1528	1477	1460	1474	1580
151	1630	1900	1943	611	1587	1533	1484	1467	1478	1587
152	1635	1903	1945	595	1594	1539	1490	1474	1482	1594
153	1639	1905	1946	605	1602	1545	1497	1481	1487	1602
154	1644	1907	1948	606	1610	1551	1504	1488	1492	1610
155	1649	1909	1951	599	1617	1557	1510	1495	1496	1617
156	1656	1912	1954	583	1624	1563	1517	1502	1501	1624
157	1661	1914	1955	582	1631	1569	1523	1509	1505	1631
158	1665	1916	1957	585	1636	1575	1530	1516	1509	1636
159	1669	1918	1956	577	1641	1581	1536	1524	1512	1641
160	1673	1920	1957	583	1646	1587	1542	1531	1517	1646
161	1677	1922	1958	592	1649	1592	1548	1538	1521	1649
162	1680	1923	1960	578	1655	1598	1554	1545	1525	1655
163	1684	1926	1962	585	1660	1604	1560	1553	1528	1660
164	1688	1928	1963	574	1664	1610	1566	1559	1531	1664
165	1695	1929	1964	592	1670	1616	1570	1566	1536	1670
166	1704	1931	1963	565	1675	1622	1576	1573	1541	1675
167	1714	1932	1963	575	1681	1629	1581	1579	1546	1681
168	1724	1933	1964	573	1687	1635	1587	1586	1550	1687

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Time (min)	Beam 1 TC #10 (°F)	Beam 1 TC #11 (°F)	Beam 1 TC #12 (°F)	Eng TC (°F)	Beam 2 Max (°F)	Beam 2 Avg TC13-16 (°F)	Beam 2 Avg TC17-20 (°F)	Beam 2 Avg TC21-24 (°F)	Beam 2 TC #13 (°F)	Beam 2 TC #14 (°F)
169	1735	1935	1966	583	1693	1641	1592	1593	1556	1693
170	1745	1938	1968	579	1699	1648	1598	1600	1561	1699
171	1756	1940	1970	577	1704	1654	1605	1606	1566	1704
172	1767	1943	1972	574	1710	1660	1611	1613	1571	1710
173	1778	1946	1975	573	1715	1666	1616	1620	1576	1715
174	1789	1949	1977	574	1721	1672	1623	1627	1581	1721
175	1800	1952	1979	576	1726	1678	1628	1633	1586	1726
176	1810	1955	1982	558	1731	1684	1634	1639	1590	1731
177	1821	1958	1984	570	1737	1690	1640	1645	1595	1737
178	1831	1960	1986	567	1742	1696	1645	1652	1600	1742
179	1841	1963	1987	579	1747	1702	1651	1658	1605	1747
180	1851	1966	1989	579	1752	1708	1658	1664	1609	1752
Max Temp	1851	1966	1989							
Max Allow	1300	1300	1300							

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Time (min)	Beam 2 TC #15 (°F)	Beam 2 TC #16 (°F)	Beam 2 TC #17 (°F)	Beam 2 TC #18 (°F)	Beam 2 TC #19 (°F)	Beam 2 TC #20 (°F)	Beam 2 TC #21 (°F)	Beam 2 TC #22 (°F)	Beam 2 TC #23 (°F)	Beam 2 TC #24 (°F)
0	83	83	84	84	84	84	84	83	83	83
1	93	103	101	104	94	105	99	105	92	103
2	129	157	140	162	133	164	132	161	130	160
3	176	209	180	216	180	214	169	218	177	211
4	211	241	202	251	214	244	193	256	211	240
5	230	261	212	277	232	262	205	283	227	259
6	253	289	232	308	256	288	221	316	250	283
7	281	317	253	337	284	312	243	348	279	308
8	308	341	272	361	308	336	264	372	306	332
9	333	363	289	380	331	358	284	392	329	353
10	354	383	304	398	351	380	302	410	349	373
11	373	402	318	414	368	401	318	426	366	392
12	390	420	331	428	384	421	333	441	383	410
13	406	437	344	440	400	440	348	454	398	428
14	421	453	356	452	414	458	361	466	412	444
15	435	468	368	462	428	474	375	476	426	460
16	448	482	380	472	440	489	388	484	439	474
17	461	495	393	480	453	504	400	492	451	488
18	473	507	405	489	465	518	412	499	462	501
19	484	520	417	496	475	532	424	506	473	513
20	494	531	428	502	486	544	435	511	482	524
21	503	542	439	508	495	557	445	516	491	536
22	512	553	450	514	505	569	455	521	500	547
23	520	564	460	519	513	581	465	526	508	558
24	528	575	470	523	522	594	474	530	515	568
25	535	586	479	528	530	605	483	534	523	579
26	542	596	488	532	537	617	491	538	529	589
27	549	607	497	536	545	628	499	543	536	600
28	557	617	506	541	552	638	507	547	543	610
29	564	626	514	545	560	649	515	551	549	620
30	571	636	523	550	567	659	523	556	556	630
31	579	646	530	554	575	669	530	561	563	640
32	586	656	538	559	583	679	537	565	570	649
33	594	666	546	564	591	689	545	571	577	658
34	602	676	554	570	599	699	552	576	584	668
35	610	686	563	575	606	709	560	581	592	677
36	617	695	571	581	614	719	567	586	599	686
37	625	705	579	586	622	729	575	592	606	696
38	633	714	587	592	630	738	582	597	613	705
39	641	724	596	598	638	748	590	603	621	714
40	649	733	605	604	646	758	597	608	628	723
41	657	743	614	610	655	768	605	614	635	733
42	665	752	623	616	663	777	613	620	643	742
43	673	761	632	623	671	787	621	626	651	751
44	681	771	642	629	680	797	628	632	658	760
45	690	780	651	636	688	806	636	638	666	769
46	698	789	661	643	696	815	643	645	674	778
47	706	798	671	650	705	825	650	651	682	787
48	715	807	680	657	714	835	658	658	690	796
49	723	817	690	664	722	844	665	664	698	806
50	732	826	699	671	731	853	672	671	706	814
51	740	835	709	679	739	862	680	678	714	823
52	749	844	718	686	748	872	687	684	722	832
53	757	853	727	694	757	881	694	691	730	841
54	766	862	736	701	765	890	702	698	738	849
55	774	871	745	709	774	899	709	705	746	858
56	783	880	755	717	783	908	716	712	754	867
57	792	889	764	725	791	918	724	719	762	875
58	800	898	773	733	800	927	731	726	769	884

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Time (min)	Beam 2 TC #15 (°F)	Beam 2 TC #16 (°F)	Beam 2 TC #17 (°F)	Beam 2 TC #18 (°F)	Beam 2 TC #19 (°F)	Beam 2 TC #20 (°F)	Beam 2 TC #21 (°F)	Beam 2 TC #22 (°F)	Beam 2 TC #23 (°F)	Beam 2 TC #24 (°F)
59	809	907	783	740	809	936	738	733	778	893
60	818	917	792	748	818	946	745	740	786	901
61	827	926	801	756	827	955	753	747	794	910
62	835	935	810	764	835	964	760	754	802	919
63	844	944	819	772	844	974	767	761	811	928
64	853	954	828	780	853	983	774	769	819	936
65	863	963	836	788	862	992	782	776	828	945
66	873	973	845	796	871	1002	789	784	836	954
67	883	982	855	804	880	1011	796	791	845	963
68	892	992	864	812	889	1020	804	799	853	972
69	902	1002	872	820	898	1030	811	806	862	981
70	912	1012	881	828	907	1039	818	814	871	990
71	922	1021	890	836	916	1048	825	821	879	999
72	931	1031	898	845	924	1058	833	829	888	1008
73	941	1041	907	853	933	1067	841	837	897	1018
74	951	1050	916	861	942	1076	848	844	905	1026
75	960	1060	924	870	951	1085	855	852	914	1035
76	970	1070	933	878	960	1094	863	860	923	1045
77	979	1079	942	886	969	1102	870	868	932	1053
78	989	1089	950	895	978	1111	877	876	941	1062
79	998	1098	958	903	986	1120	884	884	949	1071
80	1008	1107	967	911	995	1128	892	892	959	1080
81	1017	1116	975	919	1004	1137	899	900	969	1089
82	1026	1125	983	927	1012	1145	906	907	979	1097
83	1035	1134	991	936	1021	1154	913	915	989	1106
84	1044	1143	999	944	1029	1162	920	923	998	1115
85	1053	1152	1007	952	1038	1170	927	932	1008	1124
86	1062	1161	1015	960	1046	1178	934	940	1017	1133
87	1071	1169	1023	969	1054	1186	941	948	1027	1141
88	1080	1178	1031	977	1063	1194	948	956	1036	1150
89	1089	1186	1039	985	1070	1202	955	965	1046	1159
90	1097	1194	1047	993	1078	1209	962	973	1055	1167
91	1106	1202	1055	1002	1087	1217	969	981	1064	1176
92	1115	1210	1063	1010	1095	1225	976	989	1073	1184
93	1123	1218	1070	1018	1102	1232	983	998	1081	1192
94	1132	1226	1078	1027	1110	1240	990	1006	1090	1200
95	1140	1234	1086	1035	1118	1247	997	1015	1099	1208
96	1149	1241	1094	1044	1126	1254	1003	1024	1108	1216
97	1157	1249	1101	1052	1134	1261	1010	1032	1116	1224
98	1165	1256	1108	1061	1141	1268	1017	1040	1125	1232
99	1173	1263	1116	1069	1149	1274	1024	1049	1133	1239
100	1181	1270	1123	1078	1156	1281	1031	1058	1142	1247
101	1189	1277	1130	1086	1164	1288	1037	1067	1150	1254
102	1197	1284	1137	1095	1171	1294	1044	1075	1158	1261
103	1205	1291	1145	1103	1178	1301	1051	1084	1166	1268
104	1213	1298	1152	1112	1185	1307	1057	1093	1174	1276
105	1220	1305	1159	1121	1193	1313	1064	1102	1182	1283
106	1228	1311	1165	1129	1199	1319	1071	1111	1190	1289
107	1236	1317	1172	1137	1206	1325	1077	1121	1198	1296
108	1244	1324	1179	1146	1213	1331	1084	1130	1205	1302
109	1252	1330	1186	1154	1220	1336	1090	1139	1213	1308

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Time (min)	Beam 2 TC #15 (°F)	Beam 2 TC #16 (°F)	Beam 2 TC #17 (°F)	Beam 2 TC #18 (°F)	Beam 2 TC #19 (°F)	Beam 2 TC #20 (°F)	Beam 2 TC #21 (°F)	Beam 2 TC #22 (°F)	Beam 2 TC #23 (°F)	Beam 2 TC #24 (°F)
110	1259	1335	1192	1162	1226	1340	1097	1148	1220	1315
111	1267	1339	1199	1171	1233	1345	1103	1161	1228	1320
112	1275	1344	1206	1179	1240	1350	1109	1174	1235	1326
113	1283	1349	1211	1186	1246	1354	1116	1187	1242	1331
114	1290	1353	1217	1195	1252	1358	1122	1199	1249	1336
115	1297	1358	1224	1205	1259	1363	1128	1211	1256	1340
116	1304	1364	1230	1214	1264	1368	1135	1223	1263	1344
117	1312	1368	1236	1224	1271	1373	1141	1234	1270	1348
118	1318	1374	1241	1233	1276	1377	1147	1245	1276	1353
119	1324	1379	1247	1242	1282	1382	1153	1256	1283	1357
120	1329	1384	1253	1252	1288	1387	1159	1266	1290	1362
121	1334	1390	1259	1262	1293	1392	1165	1277	1296	1366
122	1338	1396	1264	1271	1299	1397	1171	1287	1302	1371
123	1342	1401	1270	1280	1304	1402	1177	1296	1308	1375
124	1347	1407	1275	1289	1309	1407	1183	1306	1314	1380
125	1352	1413	1280	1298	1314	1412	1189	1315	1320	1385
126	1358	1419	1285	1307	1319	1417	1194	1323	1325	1390
127	1363	1425	1289	1314	1323	1422	1200	1332	1330	1395
128	1368	1431	1294	1322	1328	1426	1204	1338	1333	1399
129	1374	1436	1298	1328	1332	1431	1209	1343	1337	1404
130	1380	1441	1302	1335	1335	1435	1214	1348	1341	1409
131	1386	1447	1307	1341	1338	1440	1218	1353	1344	1413
132	1393	1452	1314	1346	1342	1444	1222	1358	1348	1418
133	1401	1459	1319	1351	1346	1450	1226	1364	1353	1425
134	1407	1463	1316	1356	1349	1453	1227	1368	1357	1427
135	1414	1467	1321	1362	1352	1457	1231	1373	1362	1431
136	1422	1473	1330	1370	1357	1463	1237	1379	1367	1437
137	1429	1478	1332	1380	1361	1468	1251	1384	1371	1442
138	1436	1483	1335	1390	1365	1472	1267	1390	1377	1447
139	1443	1488	1343	1402	1370	1477	1283	1401	1382	1452
140	1450	1494	1350	1415	1375	1482	1298	1411	1388	1457
141	1457	1499	1359	1427	1380	1487	1312	1421	1394	1461
142	1463	1504	1368	1438	1385	1491	1324	1431	1401	1465
143	1470	1508	1377	1449	1391	1494	1334	1439	1407	1468
144	1477	1512	1387	1459	1397	1496	1343	1448	1413	1471
145	1483	1518	1397	1468	1403	1499	1352	1456	1419	1474
146	1490	1523	1406	1478	1409	1504	1360	1465	1425	1479
147	1496	1528	1415	1486	1415	1508	1368	1473	1431	1484
148	1502	1532	1423	1495	1421	1511	1377	1481	1437	1489
149	1508	1538	1432	1503	1428	1517	1385	1490	1444	1495
150	1514	1543	1440	1513	1434	1521	1393	1497	1450	1501
151	1520	1548	1447	1522	1440	1526	1401	1504	1456	1507
152	1525	1554	1454	1530	1446	1530	1409	1511	1463	1512
153	1530	1559	1462	1539	1452	1534	1418	1519	1468	1517
154	1536	1565	1469	1548	1458	1539	1427	1526	1475	1522
155	1542	1571	1476	1557	1464	1543	1436	1534	1481	1528
156	1550	1578	1483	1566	1470	1548	1446	1542	1487	1533
157	1557	1584	1489	1575	1476	1553	1455	1550	1493	1538
158	1564	1590	1495	1583	1482	1558	1464	1558	1498	1544
159	1572	1597	1500	1592	1487	1563	1473	1567	1504	1550
160	1581	1603	1507	1600	1493	1568	1481	1576	1510	1555
161	1587	1609	1513	1608	1499	1573	1490	1585	1515	1561
162	1596	1617	1518	1615	1504	1579	1498	1594	1521	1568
163	1605	1624	1524	1623	1510	1584	1506	1603	1527	1574
164	1612	1631	1528	1630	1515	1590	1513	1611	1533	1580
165	1620	1638	1531	1636	1520	1594	1520	1619	1539	1587
166	1627	1646	1535	1642	1526	1600	1526	1626	1545	1593
167	1635	1652	1540	1648	1531	1605	1532	1633	1552	1600
168	1643	1659	1545	1654	1537	1611	1537	1640	1559	1607

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Time (min)	Beam 2 TC #15 (°F)	Beam 2 TC #16 (°F)	Beam 2 TC #17 (°F)	Beam 2 TC #18 (°F)	Beam 2 TC #19 (°F)	Beam 2 TC #20 (°F)	Beam 2 TC #21 (°F)	Beam 2 TC #22 (°F)	Beam 2 TC #23 (°F)	Beam 2 TC #24 (°F)
169	1650	1666	1550	1660	1543	1616	1543	1646	1567	1614
170	1657	1674	1556	1666	1549	1622	1550	1653	1574	1621
171	1664	1680	1562	1672	1556	1628	1556	1659	1582	1627
172	1671	1687	1567	1678	1563	1634	1562	1665	1590	1634
173	1679	1694	1572	1683	1570	1640	1568	1672	1598	1641
174	1685	1701	1577	1689	1578	1646	1574	1678	1606	1648
175	1692	1708	1581	1694	1586	1652	1580	1684	1614	1655
176	1699	1714	1585	1697	1594	1658	1585	1689	1621	1662
177	1706	1721	1590	1703	1601	1664	1590	1694	1628	1669
178	1713	1728	1595	1708	1609	1669	1596	1700	1636	1675
179	1720	1735	1600	1712	1617	1676	1601	1705	1643	1682
180	1727	1742	1606	1718	1624	1682	1605	1710	1650	1689

Max Temp
Max Allow

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Time (min)	Deck Beam 2 Eng TC (°F)	Beam 3 Max	Beam 3 Avg TC25-28	Beam 3 Avg TC29-32	Beam 3 Avg TC33-36	Beam 3 TC #25 (°F)	Beam 3 TC #26 (°F)	Beam 3 TC #27 (°F)	Beam 3 TC #28 (°F)
0	84	84	83	83	83	84	83	83	83
1	84	137	109	114	109	105	120	102	110
2	84	219	168	174	168	145	194	155	177
3	84	287	224	228	222	189	261	216	230
4	84	300	249	253	254	197	283	248	267
5	84	318	270	274	277	211	308	267	292
6	84	362	303	307	310	237	346	303	324
7	84	391	336	337	339	274	378	336	354
8	84	409	359	360	365	292	397	363	382
9	85	423	380	380	386	314	414	386	407
10	86	445	397	398	406	328	429	402	429
11	87	466	413	414	423	342	441	418	449
12	89	485	428	429	439	357	455	433	467
13	91	502	441	442	452	371	464	446	483
14	93	518	454	454	464	384	474	459	498
15	95	531	465	465	476	395	483	470	511
16	98	543	475	475	486	407	490	480	523
17	101	555	485	484	496	417	497	490	535
18	104	566	494	492	505	427	504	498	546
19	108	578	503	501	513	438	510	506	556
20	112	589	511	509	522	447	516	514	567
21	116	600	519	517	530	457	522	521	577
22	121	611	526	524	537	465	526	527	587
23	126	621	534	532	544	474	531	533	597
24	132	632	541	538	551	481	535	539	607
25	138	642	547	544	558	489	538	544	616
26	145	653	553	551	565	496	541	550	626
27	152	663	559	557	571	502	545	555	635
28	160	673	565	563	578	508	548	561	644
29	169	683	571	569	584	513	552	567	652
30	180	693	577	575	591	519	556	573	661
31	191	703	584	581	598	525	560	580	670
32	200	712	590	587	604	530	563	586	679
33	204	722	595	593	610	534	567	592	687
34	205	731	601	599	616	539	570	599	696
35	206	740	607	604	623	544	574	605	705
36	208	749	613	610	629	549	577	612	713
37	211	757	619	616	635	554	581	619	722
38	215	766	625	622	642	559	585	625	730
39	220	775	631	628	648	565	589	632	739
40	223	784	637	633	655	570	593	639	747
41	228	793	643	639	661	575	597	646	755
42	234	802	650	645	669	580	602	653	764
43	240	812	656	652	676	585	607	661	772
44	247	820	663	658	683	590	612	668	780
45	253	829	670	664	690	595	618	676	789
46	260	838	677	671	697	601	625	684	797
47	267	847	684	677	704	606	631	691	806
48	274	856	691	685	712	612	639	699	815
49	281	865	699	691	719	618	646	707	823
50	287	874	706	698	727	624	653	716	831
51	295	882	714	704	734	630	660	724	840
52	301	891	721	712	742	637	667	732	848
53	308	899	729	718	749	643	673	741	857
54	315	908	736	725	757	650	681	749	865
55	322	917	744	732	764	656	688	758	874
56	328	926	752	739	772	663	695	766	883
57	335	934	759	746	779	670	702	774	891
58	341	943	767	753	786	676	709	782	900

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Time (min)	Deck Beam 2 Eng TC (°F)	Beam 3 Max	Beam 3 Avg TC25-28	Beam 3 Avg TC29-32	Beam 3 Avg TC33-36	Beam 3 TC #25 (°F)	Beam 3 TC #26 (°F)	Beam 3 TC #27 (°F)	Beam 3 TC #28 (°F)
59	347	952	775	760	794	683	716	791	908
60	354	960	782	767	801	690	722	799	917
61	360	969	790	774	809	696	730	807	926
62	366	978	798	782	817	703	737	816	935
63	373	987	805	789	824	710	744	824	943
64	379	995	813	796	831	717	751	832	952
65	385	1004	821	803	839	724	759	841	961
66	391	1013	830	810	847	732	767	849	970
67	398	1024	838	818	855	739	774	858	979
68	403	1035	846	825	864	746	782	867	988
69	409	1046	854	833	872	753	789	876	997
70	415	1057	862	840	881	760	796	885	1006
71	420	1068	870	848	890	768	804	894	1015
72	426	1079	879	856	898	775	812	903	1025
73	431	1091	887	864	907	782	820	912	1035
74	437	1105	896	872	918	789	827	922	1045
75	443	1120	905	880	928	796	835	932	1055
76	448	1135	914	888	939	803	843	942	1066
77	454	1151	923	896	950	810	851	952	1077
78	459	1166	932	904	962	817	859	962	1088
79	465	1182	941	912	974	824	867	972	1099
80	470	1197	950	920	986	831	875	984	1110
81	475	1213	960	929	998	838	883	996	1121
82	480	1229	971	936	1010	845	892	1011	1134
83	485	1244	984	945	1022	853	900	1027	1157
84	490	1259	999	953	1033	860	909	1045	1183
85	495	1272	1016	961	1045	867	918	1063	1215
86	500	1286	1036	970	1056	875	928	1084	1255
87	505	1299	1054	978	1067	882	938	1106	1290
88	510	1322	1072	986	1078	889	948	1128	1322
89	515	1348	1089	994	1089	897	959	1150	1348
90	520	1371	1104	1002	1100	904	970	1171	1371
91	524	1395	1120	1011	1110	911	981	1192	1395
92	529	1420	1136	1019	1119	918	993	1212	1420
93	534	1445	1151	1027	1129	925	1004	1231	1445
94	539	1468	1166	1036	1140	931	1016	1249	1468
95	543	1489	1181	1044	1149	939	1028	1266	1489
96	547	1508	1194	1052	1158	946	1040	1280	1508
97	552	1526	1206	1060	1168	953	1051	1295	1526
98	556	1546	1219	1068	1177	959	1063	1309	1546
99	560	1568	1233	1076	1188	967	1074	1323	1568
100	565	1590	1246	1084	1198	973	1086	1335	1590
101	569	1611	1259	1098	1208	980	1097	1348	1611
102	574	1630	1272	1112	1217	987	1108	1362	1630
103	578	1646	1284	1124	1228	994	1119	1377	1646
104	582	1661	1297	1137	1238	1001	1130	1394	1661
105	586	1674	1308	1150	1248	1008	1140	1410	1674
106	590	1686	1320	1164	1258	1015	1151	1427	1686
107	594	1697	1331	1176	1268	1022	1161	1442	1697
108	598	1707	1341	1188	1278	1029	1171	1457	1707
109	602	1717	1352	1200	1288	1036	1182	1472	1717

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Time (min)	Deck Beam 2 Eng TC (°F)	Beam 3 Max	Beam 3 Avg TC25-28	Beam 3 Avg TC29-32	Beam 3 Avg TC33-36	Beam 3 TC #25 (°F)	Beam 3 TC #26 (°F)	Beam 3 TC #27 (°F)	Beam 3 TC #28 (°F)
110	606	1726	1362	1210	1298	1044	1192	1486	1726
111	610	1734	1372	1221	1308	1051	1202	1500	1734
112	613	1743	1382	1230	1318	1058	1212	1513	1743
113	618	1750	1391	1240	1328	1065	1222	1525	1750
114	621	1758	1400	1249	1337	1072	1232	1537	1758
115	625	1766	1409	1258	1346	1078	1241	1551	1766
116	629	1773	1418	1268	1356	1085	1251	1564	1773
117	632	1780	1428	1276	1365	1092	1260	1578	1780
118	636	1787	1437	1285	1373	1099	1270	1590	1787
119	639	1793	1445	1293	1382	1106	1279	1602	1793
120	643	1799	1453	1301	1391	1112	1288	1614	1799
121	646	1804	1461	1309	1399	1119	1297	1624	1804
122	650	1810	1469	1317	1407	1125	1307	1635	1810
123	653	1815	1477	1324	1416	1132	1316	1644	1815
124	656	1820	1484	1331	1424	1138	1325	1653	1820
125	659	1825	1491	1339	1432	1145	1334	1661	1825
126	662	1828	1498	1346	1439	1152	1342	1670	1828
127	666	1831	1505	1353	1447	1159	1351	1678	1831
128	669	1834	1511	1359	1454	1165	1360	1685	1834
129	671	1835	1517	1365	1460	1172	1368	1692	1835
130	674	1836	1523	1372	1466	1178	1378	1699	1836
131	677	1837	1528	1378	1473	1184	1387	1705	1837
132	680	1843	1536	1385	1479	1192	1396	1711	1843
133	683	1849	1543	1392	1487	1200	1406	1717	1849
134	686	1839	1545	1396	1489	1204	1414	1722	1839
135	689	1839	1550	1401	1492	1211	1423	1726	1839
136	692	1847	1558	1407	1497	1219	1432	1732	1847
137	694	1850	1564	1413	1502	1226	1441	1737	1850
138	697	1849	1569	1419	1506	1233	1450	1742	1849
139	700	1853	1575	1425	1510	1240	1458	1747	1853
140	702	1857	1581	1431	1514	1248	1468	1751	1857
141	705	1861	1587	1437	1518	1256	1476	1756	1861
142	707	1862	1593	1442	1522	1263	1485	1760	1862
143	710	1863	1598	1448	1526	1270	1493	1764	1863
144	712	1866	1604	1454	1529	1279	1501	1768	1866
145	714	1870	1610	1460	1534	1287	1509	1772	1870
146	717	1874	1618	1466	1538	1304	1518	1777	1874
147	719	1876	1625	1472	1542	1316	1526	1782	1876
148	721	1877	1631	1478	1547	1327	1534	1786	1877
149	724	1880	1636	1485	1553	1335	1541	1788	1880
150	726	1882	1642	1491	1558	1345	1548	1792	1882
151	729	1883	1648	1497	1563	1355	1556	1797	1883
152	731	1884	1653	1503	1568	1364	1563	1800	1884
153	732	1886	1658	1509	1572	1372	1572	1803	1886
154	734	1889	1664	1516	1577	1380	1581	1807	1889
155	736	1891	1670	1522	1581	1388	1589	1810	1891
156	738	1893	1675	1528	1586	1397	1598	1813	1893
157	740	1895	1682	1534	1590	1407	1607	1817	1895
158	742	1897	1688	1540	1594	1417	1617	1820	1897
159	744	1897	1694	1546	1597	1428	1627	1824	1897
160	745	1898	1701	1552	1601	1439	1636	1829	1898
161	747	1900	1707	1558	1604	1450	1646	1833	1900
162	749	1902	1714	1563	1608	1461	1656	1837	1902
163	751	1903	1721	1569	1611	1473	1666	1842	1903
164	753	1905	1728	1575	1615	1484	1676	1847	1905
165	755	1898	1731	1579	1618	1493	1683	1849	1898
166	757	1894	1735	1583	1621	1503	1691	1852	1894
167	759	1892	1739	1587	1624	1512	1698	1854	1892
168	760	1891	1743	1591	1627	1521	1704	1856	1891

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Time (min)	Deck Beam 2 Eng TC (°F)	Beam 3 Max	Beam 3 Avg TC25-28	Beam 3 Avg TC29-32	Beam 3 Avg TC33-36	Beam 3 TC #25 (°F)	Beam 3 TC #26 (°F)	Beam 3 TC #27 (°F)	Beam 3 TC #28 (°F)
169	762	1892	1748	1595	1631	1530	1711	1858	1892
170	763	1894	1753	1599	1635	1539	1717	1861	1894
171	765	1896	1758	1603	1638	1547	1722	1865	1896
172	767	1898	1762	1608	1641	1555	1728	1868	1898
173	768	1901	1767	1612	1645	1563	1733	1871	1901
174	770	1903	1772	1617	1648	1571	1738	1874	1903
175	771	1905	1777	1621	1652	1580	1744	1877	1905
176	773	1908	1781	1626	1656	1588	1749	1879	1908
177	774	1910	1785	1630	1659	1596	1753	1882	1910
178	776	1912	1790	1635	1662	1604	1758	1886	1912
179	777	1914	1795	1639	1665	1612	1763	1889	1914
180	778	1916	1799	1644	1668	1620	1767	1891	1916
Max Temp									
Max Allow									

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Time (min)	Beam 3 TC #29 (°F)	Beam 3 TC #30 (°F)	Beam 3 TC #31 (°F)	Beam 3 TC #32 (°F)	Beam 3 TC #33 (°F)	Beam 3 TC #34 (°F)	Beam 3 TC #35 (°F)	Beam 3 TC #36 (°F)	Deck Beam 3 Eng TC (°F)	Deck Front Eng TC (°F)
0	84	84	82	82	83	83	82	82	84	84
1	104	137	101	114	103	117	104	113	84	84
2	142	219	153	182	141	188	155	187	84	84
3	187	287	207	232	183	247	213	244	84	84
4	199	300	241	273	203	281	246	284	84	84
5	213	318	265	299	218	308	274	309	84	84
6	237	362	295	332	243	347	309	342	84	84
7	267	391	327	362	271	373	339	372	84	84
8	287	409	354	390	296	398	367	399	85	84
9	305	423	377	416	317	418	388	422	86	84
10	321	435	395	439	338	435	406	445	87	83
11	337	446	412	461	357	448	422	466	89	84
12	351	457	426	480	373	458	438	485	92	84
13	364	466	440	497	385	467	452	502	94	84
14	375	476	453	512	397	476	465	518	98	84
15	385	484	464	525	409	486	477	531	102	84
16	395	491	475	537	421	494	487	543	106	84
17	405	496	485	549	431	502	496	555	110	84
18	414	502	494	559	440	507	505	566	116	84
19	423	507	503	570	450	513	512	578	122	84
20	432	513	510	581	458	519	520	589	128	84
21	441	517	518	591	467	524	527	600	135	84
22	448	522	524	602	474	528	534	611	143	84
23	456	527	531	612	482	532	541	621	154	84
24	463	531	536	621	489	536	547	632	169	84
25	469	535	542	631	496	539	554	642	182	85
26	476	538	549	640	502	543	561	653	190	85
27	482	542	555	650	507	547	568	663	195	85
28	488	544	561	659	513	551	575	673	201	86
29	494	547	567	668	518	554	582	683	206	86
30	500	550	573	677	523	559	589	693	208	87
31	505	553	579	686	528	563	596	703	213	88
32	511	557	585	695	533	567	603	712	217	89
33	516	560	592	704	538	571	610	722	221	90
34	520	564	598	712	542	575	617	731	225	91
35	526	567	604	720	547	579	624	740	231	92
36	530	570	611	729	552	583	632	749	237	93
37	535	574	618	737	556	587	639	757	244	95
38	539	577	624	746	561	592	647	766	251	96
39	544	581	631	754	565	596	654	775	259	98
40	549	584	638	762	570	602	662	784	267	100
41	553	588	645	771	574	608	670	793	275	101
42	557	592	652	779	579	614	679	802	283	103
43	562	597	659	788	584	621	686	812	292	106
44	566	602	666	796	588	627	695	820	299	108
45	571	608	674	804	593	634	703	829	308	110
46	575	614	681	813	598	640	711	838	316	112
47	579	620	689	821	603	647	720	847	324	115
48	584	627	697	830	608	654	728	856	332	118
49	589	633	705	838	614	661	737	865	340	121
50	593	639	713	847	620	668	745	874	348	124
51	597	645	720	855	625	674	754	882	356	127
52	602	652	729	863	631	682	762	891	365	131
53	607	658	736	871	637	688	770	899	373	135
54	611	665	745	880	643	696	779	908	381	141
55	616	671	753	888	649	703	787	917	389	149
56	620	678	761	896	654	710	796	926	397	159
57	625	685	769	905	660	717	804	934	405	168
58	630	691	777	913	666	724	812	943	413	173

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Time (min)	Beam 3 TC #29 (°F)	Beam 3 TC #30 (°F)	Beam 3 TC #31 (°F)	Beam 3 TC #32 (°F)	Beam 3 TC #33 (°F)	Beam 3 TC #34 (°F)	Beam 3 TC #35 (°F)	Beam 3 TC #36 (°F)	Deck Beam 3 Eng TC (°F)	Deck Front Eng TC (°F)
59	634	698	786	922	671	730	821	952	421	178
60	639	705	794	931	677	738	829	960	429	182
61	644	712	802	939	683	745	837	969	436	186
62	649	719	810	948	690	752	846	978	444	188
63	654	726	819	956	696	759	854	987	452	191
64	659	733	827	965	701	766	862	995	459	193
65	664	739	835	973	708	774	871	1004	467	195
66	669	746	844	982	714	781	880	1013	474	196
67	674	753	852	991	720	788	889	1024	482	196
68	679	760	861	1000	727	795	899	1035	489	197
69	684	767	870	1009	732	802	908	1046	496	198
70	689	774	879	1018	739	810	918	1057	504	199
71	694	782	888	1027	745	817	928	1068	511	199
72	700	789	897	1037	751	825	938	1079	518	199
73	705	796	906	1047	758	832	948	1091	525	200
74	711	804	915	1057	764	840	961	1105	533	200
75	716	811	924	1067	770	847	974	1120	540	200
76	721	818	934	1077	776	855	988	1135	547	201
77	727	826	943	1087	783	863	1003	1151	555	201
78	733	833	952	1097	789	872	1020	1166	562	201
79	738	841	962	1106	795	880	1038	1182	569	201
80	744	849	972	1116	802	888	1056	1197	575	202
81	750	857	981	1126	808	897	1073	1213	582	202
82	756	864	991	1134	814	906	1089	1229	589	202
83	761	872	1001	1144	821	916	1106	1244	596	203
84	768	880	1011	1153	827	925	1121	1259	603	202
85	774	888	1021	1162	834	935	1137	1272	610	202
86	780	896	1031	1172	841	945	1153	1286	616	203
87	787	904	1041	1181	848	955	1167	1299	622	203
88	793	911	1050	1190	854	965	1182	1311	628	202
89	799	920	1060	1198	861	975	1196	1323	635	202
90	805	927	1070	1207	868	985	1211	1335	640	202
91	812	935	1080	1216	875	995	1224	1345	646	201
92	818	943	1089	1225	882	1005	1237	1353	652	201
93	825	951	1099	1234	889	1015	1250	1363	657	201
94	831	959	1109	1243	896	1026	1263	1373	663	201
95	839	967	1118	1252	902	1035	1275	1382	669	201
96	845	975	1128	1261	910	1045	1286	1392	674	200
97	852	983	1137	1269	916	1055	1297	1403	679	200
98	858	990	1146	1278	923	1064	1307	1414	684	200
99	865	998	1155	1287	930	1074	1317	1429	689	199
100	871	1006	1164	1296	937	1083	1325	1446	694	200
101	877	1014	1177	1325	944	1092	1333	1462	699	200
102	883	1021	1191	1351	950	1101	1341	1477	704	200
103	890	1029	1206	1371	957	1110	1351	1492	709	201
104	896	1037	1220	1394	964	1119	1361	1506	714	201
105	902	1045	1233	1421	972	1128	1372	1519	718	200
106	908	1053	1246	1447	979	1136	1384	1532	723	201
107	914	1061	1259	1471	986	1145	1395	1544	727	200
108	919	1069	1270	1493	994	1154	1408	1556	732	201
109	925	1078	1282	1513	1001	1162	1420	1569	736	201

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Time (min)	Beam 3 TC #29 (°F)	Beam 3 TC #30 (°F)	Beam 3 TC #31 (°F)	Beam 3 TC #32 (°F)	Beam 3 TC #33 (°F)	Beam 3 TC #34 (°F)	Beam 3 TC #35 (°F)	Beam 3 TC #36 (°F)	Deck Beam 3 Eng TC (°F)	Deck Front Eng TC (°F)
110	931	1086	1293	1531	1009	1171	1431	1581	740	200
111	937	1094	1304	1547	1016	1180	1443	1594	745	201
112	943	1102	1314	1561	1024	1188	1454	1606	749	201
113	949	1110	1324	1576	1032	1196	1465	1618	753	202
114	954	1118	1333	1591	1040	1204	1475	1628	757	202
115	960	1126	1342	1605	1047	1213	1485	1639	761	202
116	966	1134	1351	1620	1055	1221	1496	1650	765	203
117	972	1142	1359	1632	1063	1230	1506	1659	769	203
118	978	1150	1368	1643	1071	1238	1515	1669	773	203
119	984	1157	1377	1654	1079	1246	1525	1677	777	205
120	989	1165	1386	1664	1087	1254	1535	1686	780	205
121	995	1172	1395	1673	1095	1262	1545	1694	784	205
122	1001	1180	1405	1681	1102	1270	1555	1702	788	206
123	1007	1187	1414	1689	1110	1278	1565	1709	791	207
124	1012	1194	1423	1696	1117	1286	1575	1716	794	208
125	1018	1202	1433	1703	1124	1294	1586	1722	798	208
126	1023	1209	1442	1708	1131	1302	1596	1728	801	209
127	1029	1216	1452	1713	1138	1310	1606	1734	804	210
128	1034	1223	1461	1718	1144	1317	1614	1739	808	210
129	1039	1230	1469	1723	1151	1325	1622	1743	810	211
130	1044	1237	1478	1727	1157	1332	1629	1747	814	212
131	1049	1244	1486	1731	1163	1340	1637	1750	817	212
132	1056	1251	1494	1737	1171	1347	1643	1756	820	213
133	1061	1258	1503	1745	1178	1355	1652	1762	823	214
134	1065	1265	1510	1742	1182	1362	1655	1757	826	215
135	1070	1271	1517	1744	1188	1369	1659	1753	829	216
136	1076	1278	1524	1751	1195	1376	1665	1753	831	217
137	1080	1284	1532	1756	1201	1382	1670	1754	834	217
138	1085	1291	1539	1759	1207	1389	1674	1752	837	219
139	1090	1297	1547	1764	1213	1396	1678	1752	839	220
140	1096	1304	1554	1770	1219	1402	1682	1753	841	221
141	1100	1310	1561	1776	1225	1409	1686	1753	851	222
142	1105	1316	1568	1779	1231	1415	1688	1753	853	223
143	1110	1323	1576	1784	1236	1421	1692	1753	856	224
144	1115	1329	1583	1788	1242	1427	1695	1753	858	226
145	1120	1335	1591	1794	1249	1433	1698	1755	861	228
146	1125	1341	1599	1799	1255	1439	1701	1757	863	229
147	1130	1348	1607	1804	1261	1445	1704	1759	865	230
148	1135	1354	1615	1809	1267	1451	1708	1760	867	232
149	1140	1361	1623	1815	1279	1458	1711	1763	870	234
150	1145	1367	1631	1820	1288	1464	1714	1765	872	235
151	1150	1374	1639	1825	1297	1470	1717	1767	874	237
152	1156	1382	1646	1829	1305	1477	1720	1769	876	239
153	1160	1389	1653	1833	1313	1483	1723	1770	878	240
154	1166	1397	1661	1838	1321	1488	1726	1772	880	242
155	1172	1404	1668	1843	1328	1493	1729	1775	882	244
156	1177	1412	1675	1847	1336	1498	1732	1777	884	245
157	1183	1420	1682	1852	1343	1502	1735	1779	886	248
158	1189	1428	1689	1855	1349	1506	1738	1781	887	249
159	1194	1436	1696	1859	1355	1510	1741	1783	889	251
160	1200	1444	1702	1862	1360	1515	1744	1784	890	253
161	1206	1452	1709	1865	1365	1519	1747	1786	892	255
162	1211	1459	1715	1868	1370	1523	1750	1788	894	257
163	1217	1467	1721	1871	1375	1526	1753	1790	896	259
164	1224	1476	1727	1874	1382	1529	1755	1792	898	261
165	1228	1483	1732	1874	1388	1532	1758	1794	900	263
166	1233	1490	1737	1873	1394	1535	1761	1795	901	265
167	1238	1496	1741	1873	1399	1538	1763	1796	903	267
168	1243	1502	1745	1872	1405	1541	1765	1797	901	269

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Time (min)	Beam 3 TC #29 (°F)	Beam 3 TC #30 (°F)	Beam 3 TC #31 (°F)	Beam 3 TC #32 (°F)	Beam 3 TC #33 (°F)	Beam 3 TC #34 (°F)	Beam 3 TC #35 (°F)	Beam 3 TC #36 (°F)	Deck Beam 3 Eng TC (°F)	Deck Front Eng TC (°F)
169	1248	1509	1749	1872	1412	1545	1768	1799	906	271
170	1254	1515	1754	1874	1419	1548	1771	1801	907	273
171	1259	1521	1757	1876	1424	1551	1773	1802	909	275
172	1264	1527	1761	1878	1430	1555	1775	1805	910	277
173	1270	1533	1766	1880	1436	1558	1778	1807	912	279
174	1276	1539	1770	1882	1442	1561	1781	1809	914	281
175	1281	1545	1774	1885	1448	1565	1784	1812	916	284
176	1286	1551	1779	1888	1454	1568	1786	1814	917	286
177	1292	1556	1783	1890	1459	1571	1789	1816	919	288
178	1297	1562	1788	1892	1463	1575	1791	1818	920	290
179	1302	1568	1792	1894	1468	1578	1794	1820	922	293
180	1308	1573	1796	1897	1473	1581	1796	1822	924	295

Max Temp
Max Allow

APPENDIX D
Load Calculations & Deflection

Contego International: Load Calculations

(Single Point Load)

Maximum bending moment for single point loading = $\frac{PL}{4}$

Maximum bending moment for uniform distributed loading = $\frac{WL^2}{8}$

Therefore:

$\frac{PL}{4} = \frac{WL^2}{8}$ Solve for "P"

$\frac{P}{4} = \frac{WL}{8}$

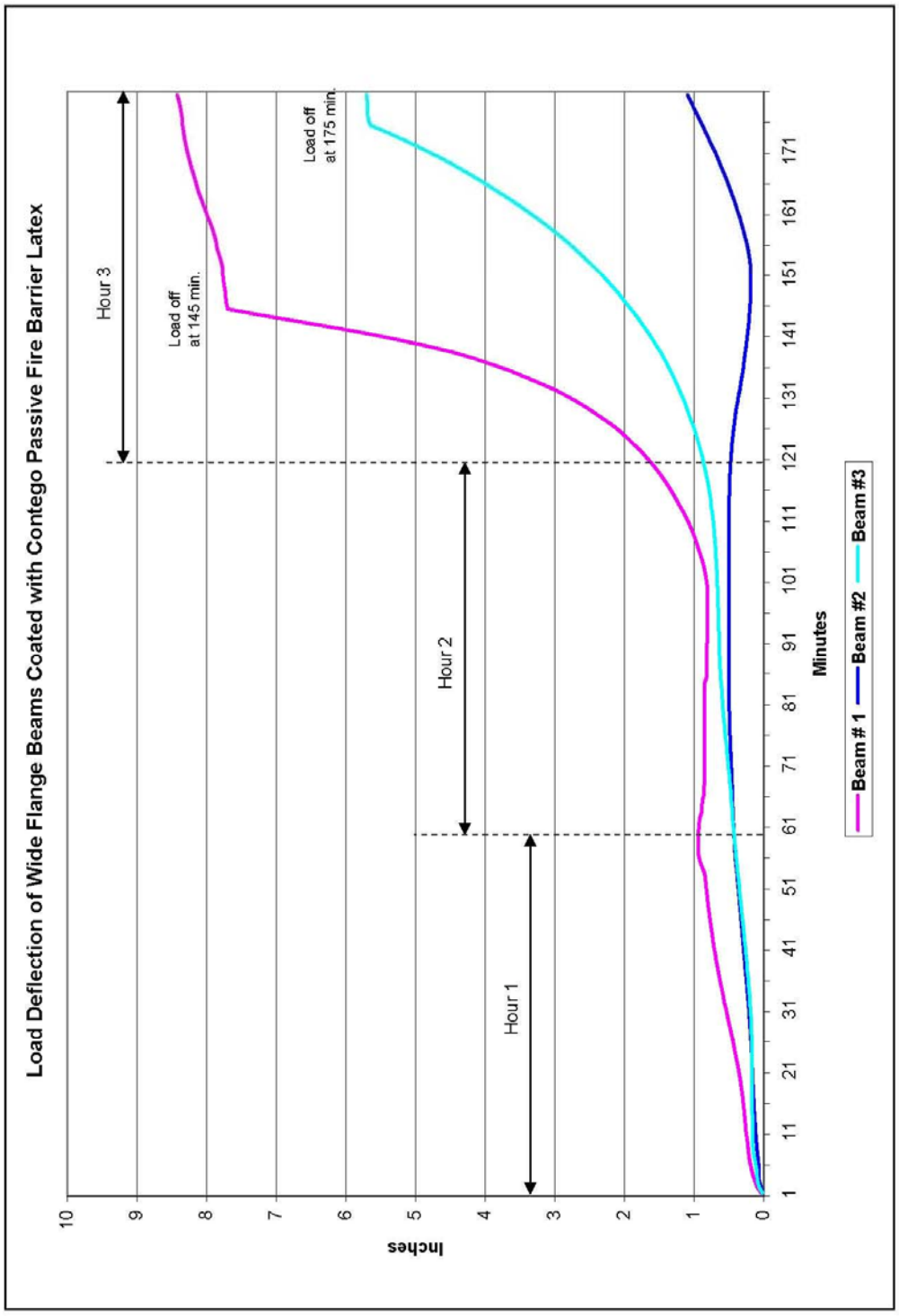
$P = \frac{4WL}{8}$

$P = \frac{WL}{2}$

1038 lbs/ linear foot $\Rightarrow$ $P = \frac{(1038 \text{ lbs / lin.ft})(13 \text{ ft})}{2} = 6747$ lbs/cylinder

6747 lbs/ cylinder X 3 cylinders = 20241 lbs (total)

$\frac{20241 \text{ lbs}}{38.485 \text{ in}^2 \text{ / cylinder X 3 cylinders}} =$ **175 psi**


Load Deflection of Wide Flange Beams Coated with Contego Passive Fire Barrier Latex
Hour 3
Hour 2
Hour 1
Load off at 145 min.
Load off at 175 min.
Inches
Minutes
Beam # 1
Beam #2
Beam #3

APPENDIX E
Photographs


GLOSS SMOKE GRAY
TRUSTED QUALITY SINCE 1921
RUST-OLEUM
STOPS RUST
PROTECTIVE ENAMEL
SUPERIOR DURABILITY
PREMIUM QUALITY
OIL-BASED
32 FL. OZ. (1 QT.) 946 L
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EXIT
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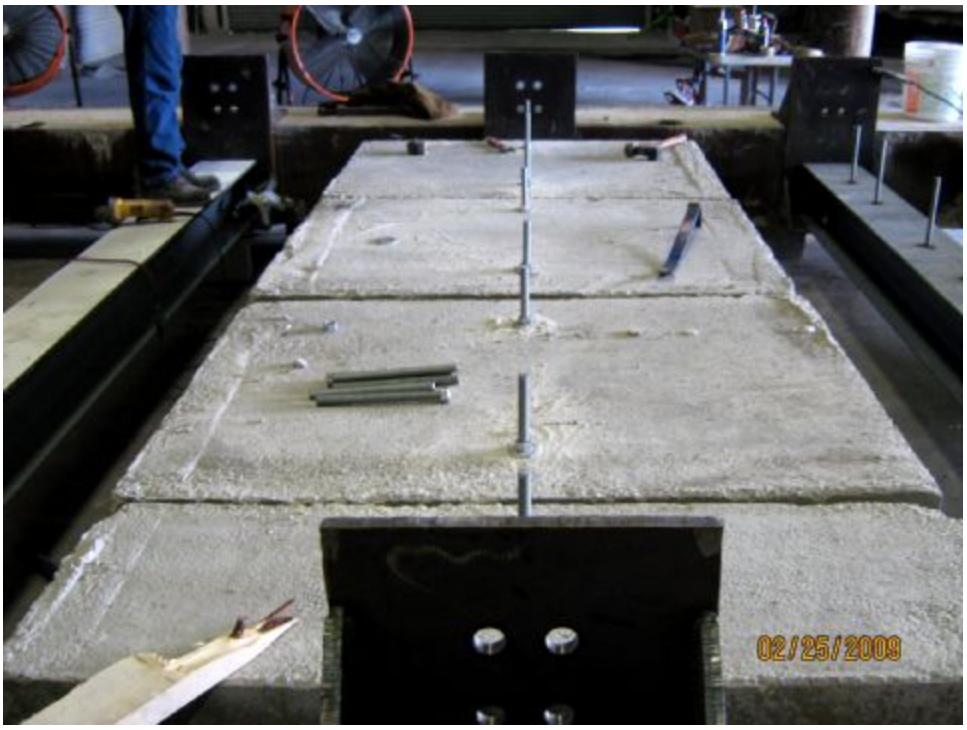
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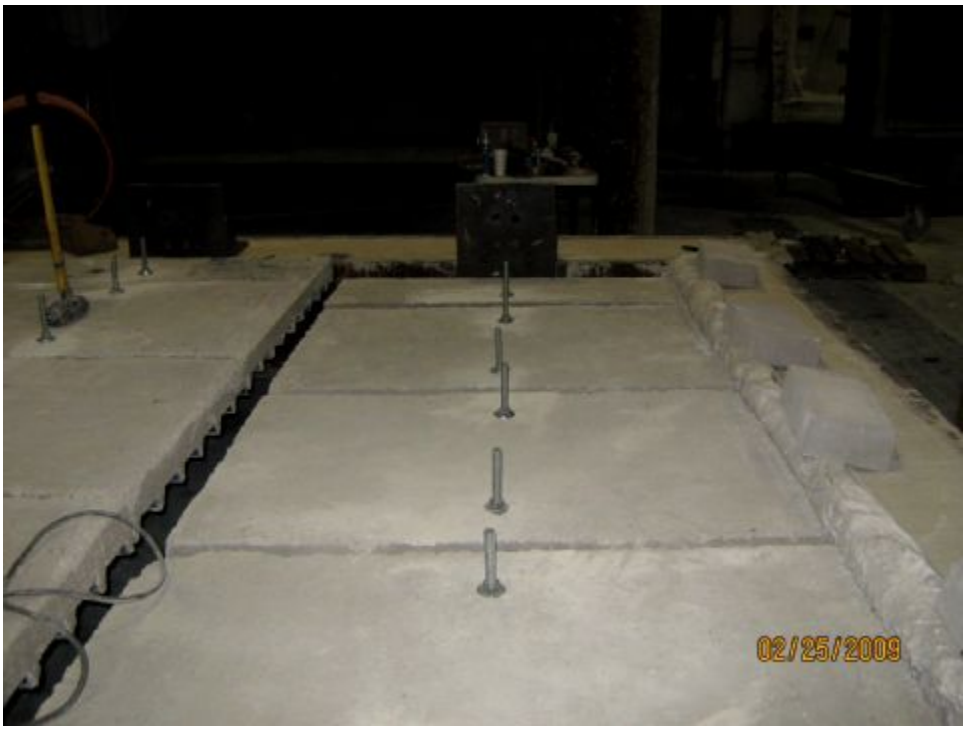
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REVISION SUMMARY

DATE	SUMMARY
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