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ASTM E119
Fire Resistance Performance

TEST REPORT

Rendered to:

SEVES GLASS BLOCK INC.

WALL ASSEMBLY:

1919_13 F120 2hr Rated Seves Glass Block Unit

Report No.: SGBI042921-110
Test Date(s): 11/30/2021
Report Date: 05/23/2022
46 pages

SGBI042921-110
05/23/2022

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TEST REPORT

Rendered to:

SEVES GLASS BLOCK INC.
10576 Broadview Road
Broadview Heights, OH 44147

Report No.:	SGBI042921-110
Test Date:	11/30/2021
Report Date:	05/23/2022

1.0 General Information

1.1 Product

1919_13 F120 2hr Rated Seves Glass Block Unit

1.2 Project Summary

ICC NTA, LLC was contracted by SEVES GLASS BLOCK INC. to evaluate a wall assembly with their 1919_13 F120 2hr Rated Seves Glass Block Unit in accordance with ASTM E119/UL263/ULC-S101 for certification testing. Testing was conducted at ICC NTA, LLC Southwest Test Facility in Bryan, Texas. Results obtained are tested values and were secured by using the designated test method(s). Test results and construction details are reported herein.

1.3 Product Description

Seves Glass Block Inc's 1919_13 F120 2hr Glass Block unit is a 5-1/8-in. thick, glass block with 1-1/4-in. wide intumescent gel that is between 2-in. wide glass parts on both sides.

These glass blocks can be implemented in several ways that are eco-friendly, functional, and flexible. Applied across all types of architecture from residential to commercial, interior to exterior. The glass blocks are constructed of sustainable resources that conserve energy. They offer sound resistance and fire safety and come in many patterns, shapes, and colors.

1.4 Qualifications

ICC NTA located in Bryan, TX has demonstrated compliance with ISO/IEC 17025 as an accredited as a Testing Laboratory and has performed all tests reported herein.

1.5 Product Sampling

No sampling information for the test specimen reported herein. Materials were provided by the client and were received on 09/28/2021 for the first wall assembly and received materials for the hose stream retest assembly on 04/07/2022.

1.6 Witnessing

Tony Kava of Seves Glass Block Inc. was present for testing reported herein.

1.7 Conditions of Testing

Unless otherwise indicated, all testing reported herein was conducted in ambient laboratory conditions.

2.0 Referenced Standards

ASTM E119-20, *Standard Test Methods for Fire Tests of Building Construction and Materials*

UL 263-19, *UL Standard for Safety for Fire Tests of Building Construction and Materials*

CAN/ULC-S101-14, *Standard Methods of Fire Endurance Tests of Building Construction and Materials*

3.0 Summary of Results

Fire Resistance Rating: 120 minutes
Hose Stream Result: Pass

4.0 Test Method

The wall assembly was evaluated in accordance with the following:

- ASTM E119-20, Standard Test Methods for Fire Tests of Building Construction and Materials. ASTM International, West Conshohocken, PA.
- UL 263-rev. 19, UL Standard for Safety for Fire Tests of Building Construction and Materials. Underwriters Laboratories, 2019.
- CAN/ULC-S101-14, Standard Methods of Fire Endurance Tests of Building Construction and Materials. ULC Standards, 2014.

4.1 General

4.1.1 Fire Endurance Test

The fire exposure is continued on the specimen with its applied load, if applicable, until failure occurs, or until the specimen has withstood the test conditions for the desired fire endurance rating.

4.1.2 Test Furnace

The test furnace is designed to allow the test specimen to uniformly be exposed to the specified time-temperature conditions. It is fitted with six (6) premixed, natural gas/air burners positioned along the floor, on the left and right-side walls, designed to provide an even heat flux distribution across the face of the test specimen while inhibiting direct flame introduction. Each burner can produce a maximum of 1.5 MBtu/hr. The test engineer/technician has overall control of the furnace temperature by controlling the amount of gas air supplied to the burners thereby controlling the overall energy input into the furnace. The furnace opening is 14-ft. wide by 12-ft. tall but can be reduced to 10-ft. wide by 10-ft. tall using an adapter.

The temperature within the furnace is determined to be the mathematical average of thermocouples located symmetrically within the furnace and positioned twelve (12) inches away from the exposed face(s) of the test specimen. The construction of these thermocouples is per ASTM E119. During the test, the furnace temperatures are recorded and displayed every 15 seconds to allow for the test engineer to control the energy input and follow the specified time-temperature curve. The data is saved every minute for report purposes.

The furnace interior temperature during a test is controlled such that the corresponding area under the time-temperature curve is within 10% of the corresponding area under the standard time-temperature curve for one (1) hour or less tests, 7.5% for tests longer than 1 hour, but less than two (2) hours, and 5% for tests longer than two (2) hours.

The fire exposure is controlled in order to follow the standard time-temperature curve, see Figure No. 1 in Appendix B - Data.

4.1.3 Temperatures of Unexposed Surfaces

Temperatures of the unexposed face are monitored using 18-gauge or lighter gauge, Type K thermocouples placed under 6-inch x 6-inch x 0.4-inch-thick, dry felted pads as described in the standard. Temperature readings are taken at not less than nine points on the surface, at intervals not exceeding one minute. The temperature on the unexposed surface is to be taken as the average value of all nine thermocouples.

4.1.4 Hose Stream Test

If required, this practice is intended to standardize the apparatus and method used to represent a standard hose stream to building elements as part of the assessment and fire resistance of building products. This practice specifies the water pressure and duration of application of the hose stream to the test assembly. This practice is to be used only after a test assembly has completed a prescribed standard fire-resistance test. The practice exposes a test assembly to a standard hose stream under controlled laboratory conditions. The apparatus used to apply the hose stream is built per the standard with a 2-1/2-in. diameter hose to a playpipe with a 1-1/8-in. discharge tip that delivers a solid stream of water. Hose stream application time and water pressure varies based on the intended fire resistance period. The nozzle tip is located 20 feet away from the test assembly and verified prior to applying the hose stream to the test assembly. The hose stream starts at one corner of the test assembly and the stream is directed to the entire face of the test assembly. The hose stream follows the pattern provided in the standard. A fully developed hose stream shall not pass through the unexposed face of the test assembly.

4.1.5 Correction Factor

When the indicated resistance period is 1/2 h or over, determined by the average or maximum temperature rise on the unexposed surface or within the test specimen, or by failure under load, a correction shall be applied for variation of the furnace exposure from that prescribed, where it will affect the classification.

The correction factor can be expressed as follows:

$$C = \frac{2I(A - A_s)}{3(A_s + L)}$$

Where:

C = time correction in the same units as I

I = indicated fire resistance in minutes

A = area under the curve of indicated average furnace temperature for the first three fourths of the indicated period

A_s = area under the standard furnace temperature curve for the same part of the indicated period, and

L = lag correction in the same units as A and A_s (54°F·h or 30°C·h (3240°F·min or 1800°C·min)).

4.2 Test Specimens

All material for the wall assembly was provided by Seves Glass Block Inc. A symmetrical wall assembly was constructed per the client's drawings. Seves Glass Block Inc. installed all glass block units. ICC NTA, LLC personnel installed steel components in order to reduce the overall size of the test frame.

Block Units

The nominal 10-ft. 4-5/8-in. tall by 13-ft. 7-11/16-in. wide wall assembly consisted of 1919_13 F120 2hr. RATED SEVES GLASS BLOCK UNIT laid using a stack bond within the test frame. The stack bond is made up of rows of stretchers with each stretcher directly centered on the stretcher below it. All the joints run vertically down the wall, with the horizontal edge joints and vertical edge joints being continuous.

Mortar was placed at the bottom of the wall assembly and in every joint at a nominal thickness of 1/4-in. thick. The mortar consisted of Lehigh Heidelberg Cement Group's Type S; white masonry cement mixed with crystalline silica per the manufacturer's specifications.

On top of the first course of glass blocks, 4-in. wide, Truss type, 9-gauge wire reinforcement was placed so not to overlap components. The wire reinforcement was installed between every other course after the first coarse and before the last course was installed. The mortar cured for a period of at least 28 days.

Sealant

At each end of the wall and on the top of the wall, Seves' expansion material was installed. The backer rod like material was ½-in. thick and was 4-in. wide. The expansion material was doubled up to fill the void between the end of the glass block wall and the test frame. Seves expansion material was also used in the same manner at the top of the wall to fill the void between the glass blocks and the test frame. The wall assembly was further sealed around the perimeter using 3M™ Fire Barrier Water Tight Sealant 1000 NS.

Test Frame

The 12-ft. tall by 14-ft. wide ASTM E119, non-loadbearing test frame was modified to contain the wall assembly. Both the overall width and height of the test frame opening was reduced using 8-in. wide C-channel. Angle iron was directly fastened to the C-channel using #12 - 1-1/2-in. long, SDS, hex head screws spaced every 16-in. on-center. The angle iron, 2-in. by 2-in. by 1/4-in. thick was used to contain the glass blocks. Seves' expansion material was installed in between the face of the glass block and the inside face of the angle iron components. The metal components added to the frame were insulated with 2-in. wide ceramic fiber blanket on the exposed face.

4.3 Test Setup and Procedure

The wall assembly was setup and evaluated in accordance with the 2020 version of ASTM E119. The non-loadbearing, symmetrical wall assembly was placed in front of the vertical furnace at ICC NTA, Inc.'s Laboratory on 11/30/2021. The thermocouple leads were connected to the data acquisition system in the control room and the connection was verified prior to ignition. The ambient air temperature within the lab was 63°F, with a relative humidity of 67%.

Deviations from the standard(s) include UL 263/ ULC-S101: Pressure measurement of furnace was not recorded during testing.

4.4 Test Results

At 10:00 AM, the burners were ignited, and the furnace temperature was controlled following the standard time-temperature curve for a period of 120 minutes.

TEST OBSERVATIONS

0:00	Burners Ignited, Test Started
0:52	Audible cracking within wall assembly
5:00	Continued popping/cracking within wall assembly
7:00	Small pieces of exposed glass block falling into furnace
8:13	Visible cracks in unexposed glass face
9:10	Mortar cracking at bottom of wall
13:18	Water vapor escaping mortar joints
16:00	Intumescent gel starting to react to temperature, can see opaque white through the unexposed face
17:52	Increased steam escaping wall assembly, visible streams of water running down unexposed face
21:58	Continuation of steam
22:00	Small piece of unexposed glass face popped off wall (No bigger than size of quarter)
29:09	Audible popping still occurring within wall assembly; less frequent
30:00	Exposed face of glass blocks beginning to melt
34:16	Steam escaping unexposed face beginning to dissipate
38:57	Exposed face slag sporadically igniting
45:30	Significantly reduced steam
55:00	Continued melting/flaming of exposed face material
56:00	Steam reduced to a slow roll in select areas of the unexposed face
1:02:00	Steam almost fully dissipated
1:04:00	Continued melting/flaming of exposed face material
1:10:30	Increased flaming within slag on exposed face
1:20:00	No changes to report
1:30:00	Majority of exposed material had melted away
1:40:00	No change to exposed face
1:50:00	No change to exposed face
1:53:00	TC 1 fell out from behind TC pad
1:55:00	Hot spots developing within intumescent visible from unexposed face
2:00:00	Burners extinguished; Fire Exposure concluded

A hose stream test was performed on the initial wall assembly following the 2-hr. ASTM E119 furnace exposure on 11/30/2021. The hose stream test was performed for a period of 1.5 sec. per 100 sq. ft. The following table denotes the procedure for determining the duration of the hose stream test. Wall dimensions were calculated after the test frame and perimeter of the exposed face of the test frame was protected with ceramic fiber blanket.

Exposed Test Specimen Size (ft.)	10.39 (L) x 13.64 (W)
Exposed Surface Area (sq. ft.)	141.66
Duration of Application (sec.)	212

Initial Hose Stream Observations (11/30/2021)

2:03:09	Wall Assembly set in position for hose stream
2:03:54	Hose Stream test started
2:04:09 (0:15 seconds)	First penetration through unexposed face
2:04:11 (0:17 seconds)	Second penetration through unexposed face
2:07:26 (212 seconds)	Hose stream test completed; several blocks broken or knocked out during hose stream test

A hose stream test was performed on a second, duplicate wall on 05/16/2022. The hose stream test was performed for a period of 1.5 sec. per 100 sq. ft. The following table denotes the procedure for determining the duration of the hose stream test. Wall dimensions were calculated after the test frame and perimeter of the exposed face of the test frame was protected with ceramic fiber blanket.

Exposed Test Specimen Size (ft.)	10.12 (L) x 13.5 (W)
Exposed Surface Area (sq. ft.)	136.67
Hose Stream Duration (sec.)	205

Hose Stream Retest Observations (05/16/2022)

1:05:33	Hose stream test started
1:09:08 (205 seconds)	Individual block was blown out. One more pass of the hose stream application would have created a projection of water through the unexposed face
1:09:10 (207 seconds)	Hose stream test completed; No fully developed hose stream through unexposed face

*Tabular and graphical data can be found in Appendix B.

4.5 Summary and Conclusions

The non-loadbearing, symmetrical wall assembly described in this report did meet the Conditions of Acceptance of ASTM E119/UL 263/ CAN/ULC-S101 when exposed to the standard time-temperature curve. The average temperature of the unexposed face of the wall assembly did not exceed the temperature threshold of 250°F average temperature and the 325°F single point. The glass block wall assembly withstood the fire exposure of ASTM E119 for a period of **120 minutes**. A second, duplicate wall assembly was subjected to a hose stream test following a fire exposure of 1/2 the duration of the initial fire exposure test of 2-hr which resulted in no projection of water through the unexposed face. The wall assembly obtained a fire resistance rating of 120 minutes.

5.0 Closing Statement

This report contains only findings and results arrived at after employing the specific test procedures listed herein. It does not constitute a recommendation for, endorsement of, or certification of the product or material tested. Unless differently required, ICC NTA, LLC reports apply the "Simple Acceptance" rule, also called "Shared Risk approach", of ILAC-G8:09/2019, Guidelines on Decision Rules and Statements of Conformity. ICC NTA makes no warranty, expressed or implied, except that the test has been performed, and a report prepared, based upon the specimen specified by the client. Extrapolation of data, from the test data provided herein, to the batch or lot from which the specimens were obtained may not correlate and should be interpreted with extreme caution. ICC NTA assumes no responsibility for variations in quality, composition, appearance, performance, or other features of similar materials produced by the client, other persons, or under conditions over which ICC NTA has no control. ICC NTA has issued this report for the exclusive use of the client to whom it is addressed. Any use or duplication of this report shall not be made without their consent. This report shall only be reproduced in its entirety.

For ICC NTA, LLC:



Joseph Briski
Test Engineer

05/23/2022



Michael Luna
Sr. Director

05/23/2022

Appendix A - Photographs



Photo No. 1
Seves' Glass Block – 1919_13 F120 block unit installed within test frame



Photo No. 2
Mortar type utilized



Photo No. 3
Sealant used to seal the perimeter of the wall assembly



Photo No. 4
4-in. wide, 9-ga. Truss type wire reinforcement

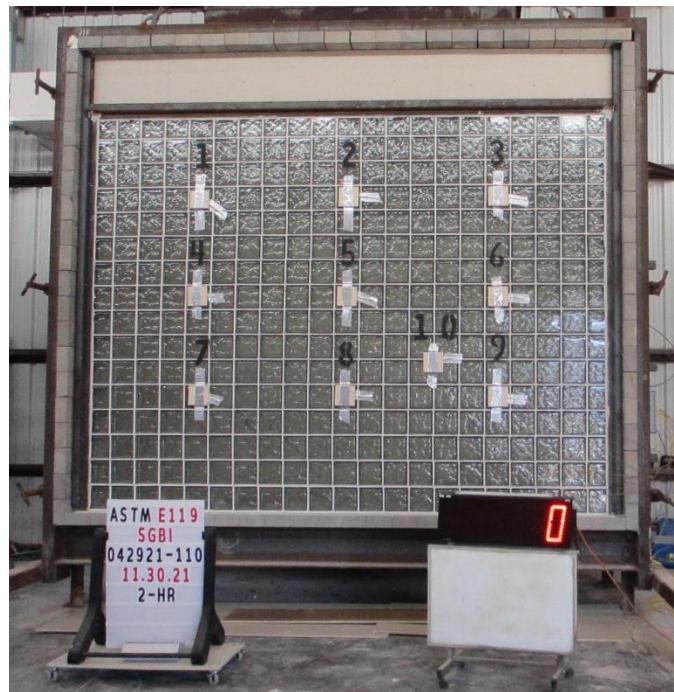


Photo No. 5
Completed test set-up



Photo No. 6
Completed test set-up – (Exposed Face) (Pre-Test)



Photo No. 7
Test Started – (2:23 minutes into test)



Photo Nos. 8a & 8b
Mortar joints cracking on unexposed face – (9:10)

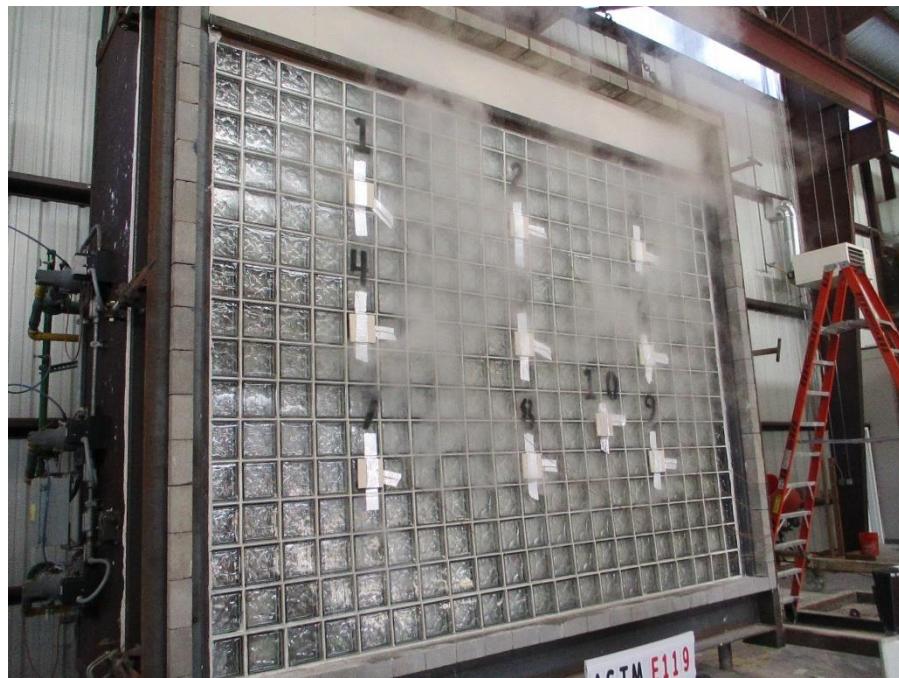


Photo No. 9
Steam escaping mortar joints on unexposed face – (13:18)



Photo No. 10
Exposed glass face beginning to melt – (30:00)



Photo No. 11
Melted slag beginning to ignite – (38:57)



Photo No. 12
Intumescent gel reacting; glass blocks appear opaque white

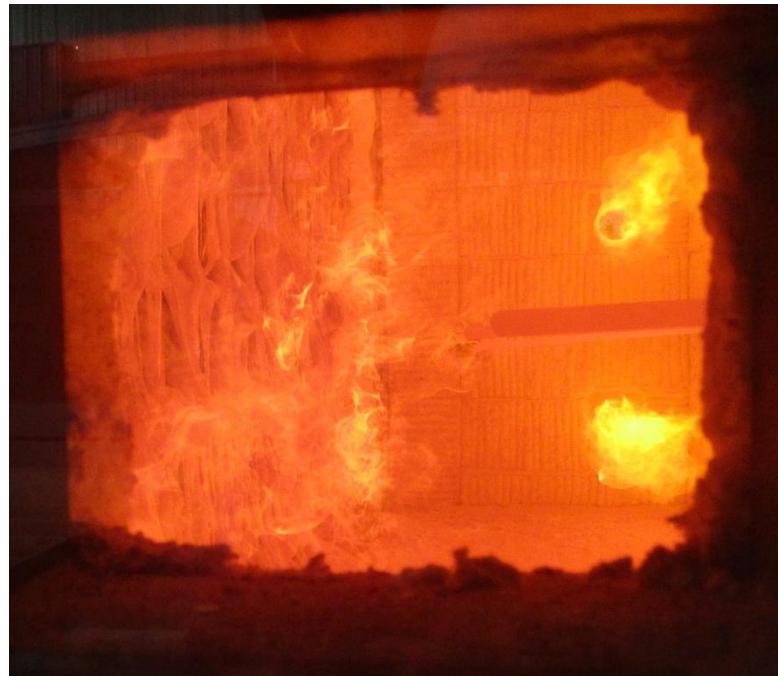


Photo No. 13
Increase in flaming within melted slag – (1:10:00)

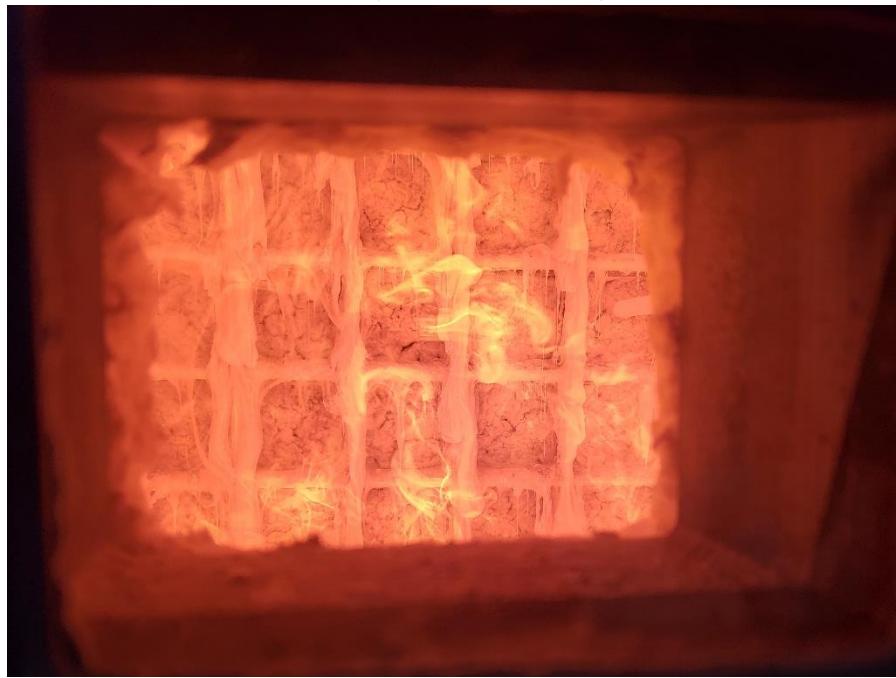


Photo No. 14
Majority of exposed glass material has melted away – (1:30:00)

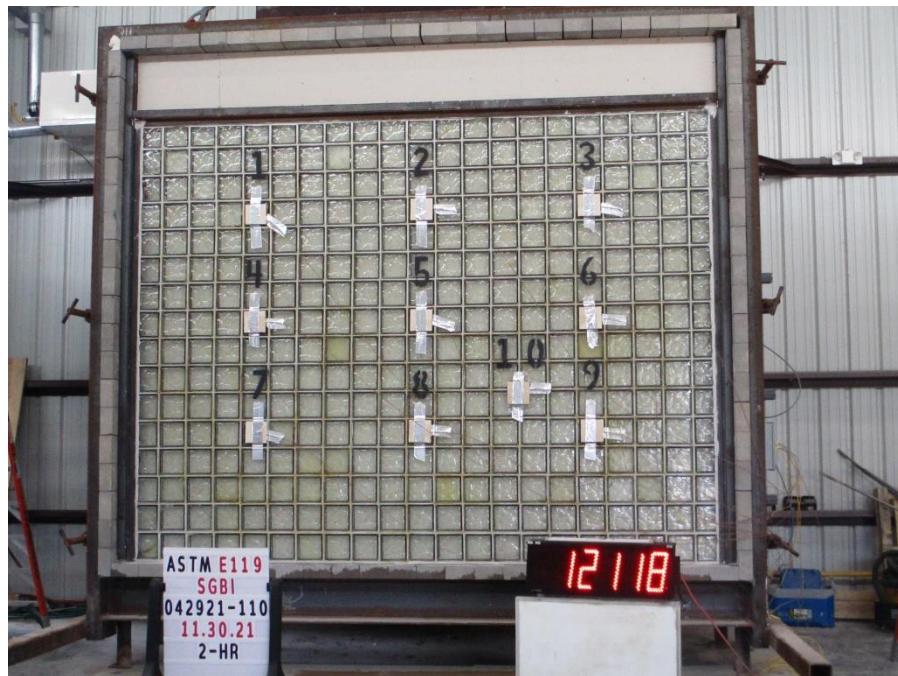


Photo No. 15
No change to unexposed face



Photo No. 16
Hot spot developing within glass block units – (1:55:00)



Photo No. 17
Exposed face – (Post-Hose Stream)



Photo No. 18
Unexposed face – (Post-Hose Stream)



Photo No. 19
Hose stream retest Specimen (Pre-Test)

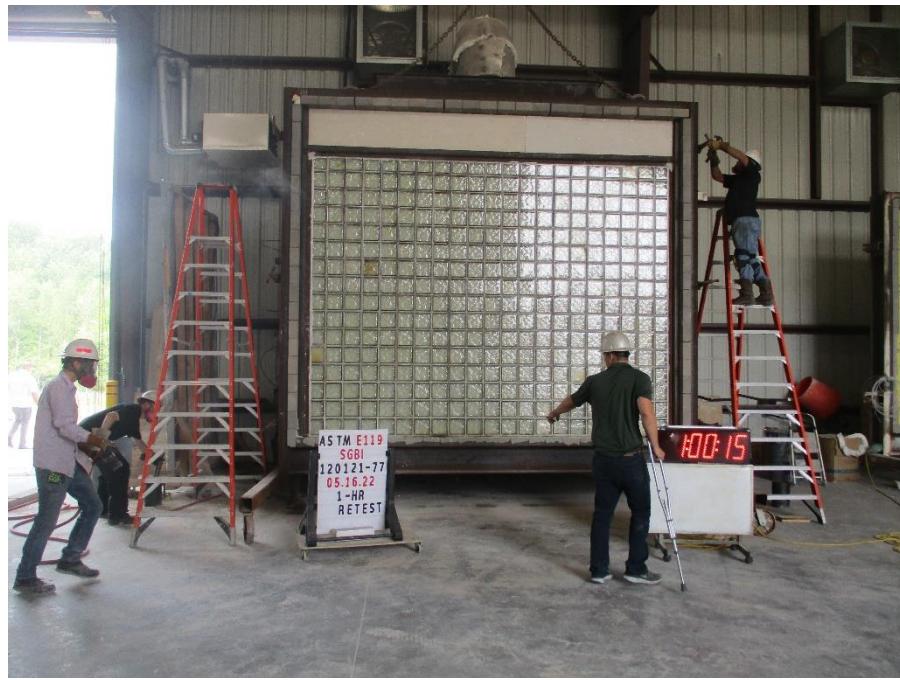


Photo No. 20
Hose Stream Retest Specimen Unexposed face – (Post Fire Endurance period)



Photo No. 21
Hose stream retest specimen – (Post-Fire Endurance Period)



Photo No. 22
Exposed face – (Post-Hose Stream test)



Photo No. 23
Unexposed face – (Post-Hose Stream)

Appendix B - Data

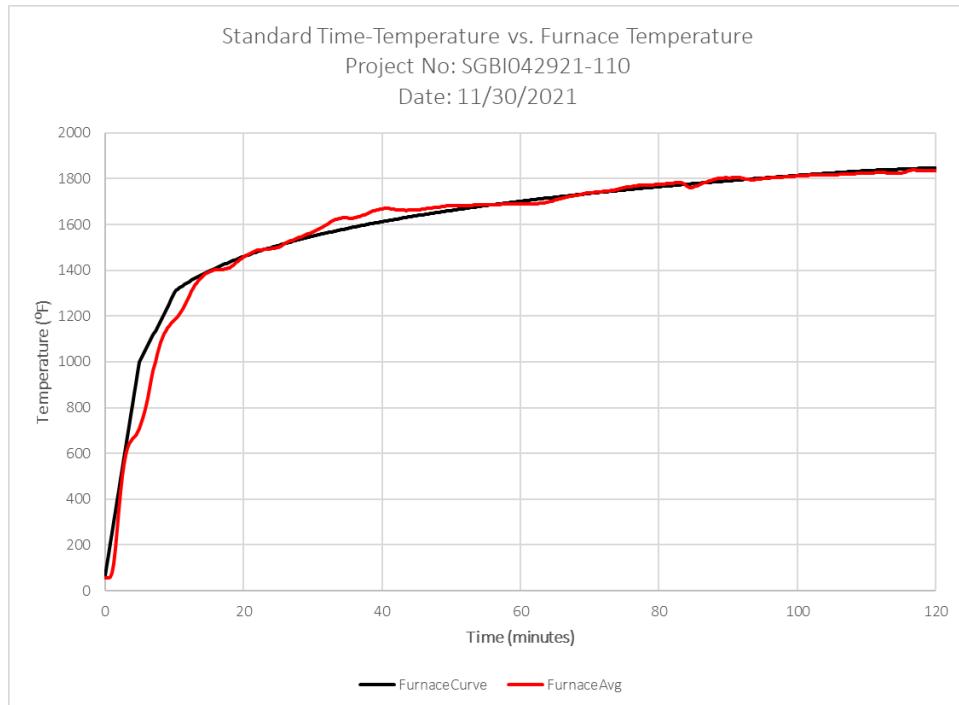


Figure No. 1

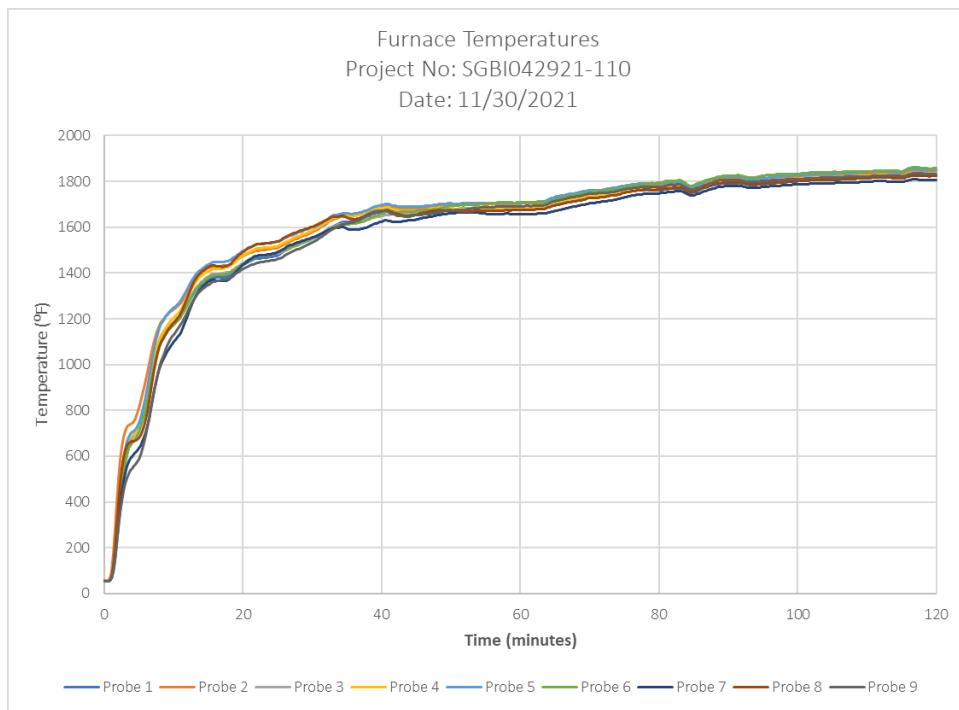


Figure No. 2

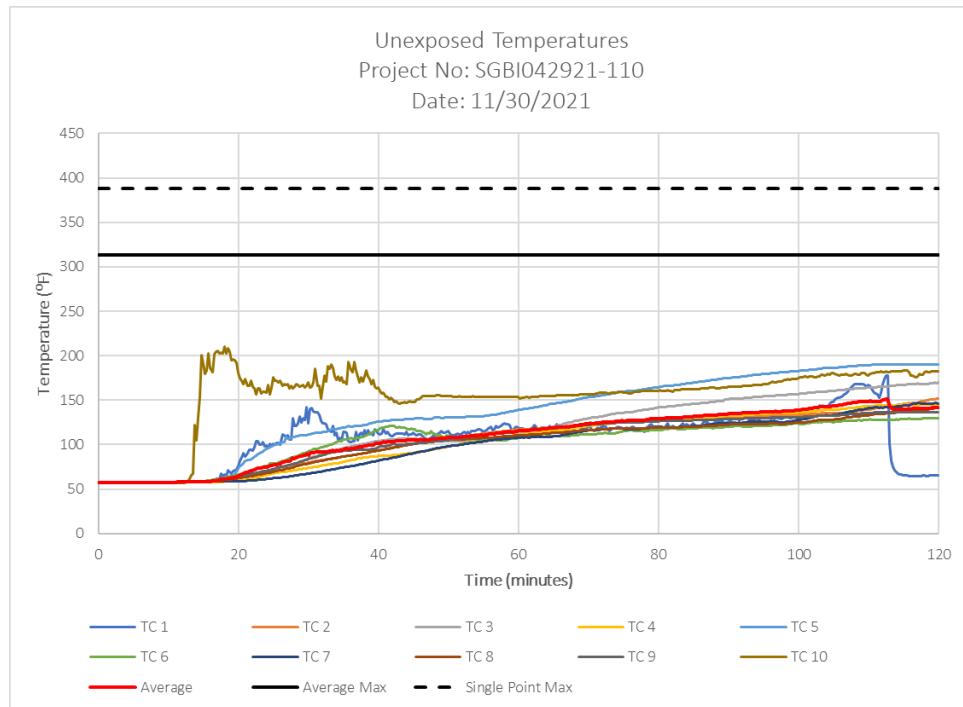


Figure No. 3
TC 1 fell off at 1:53:00 into the test

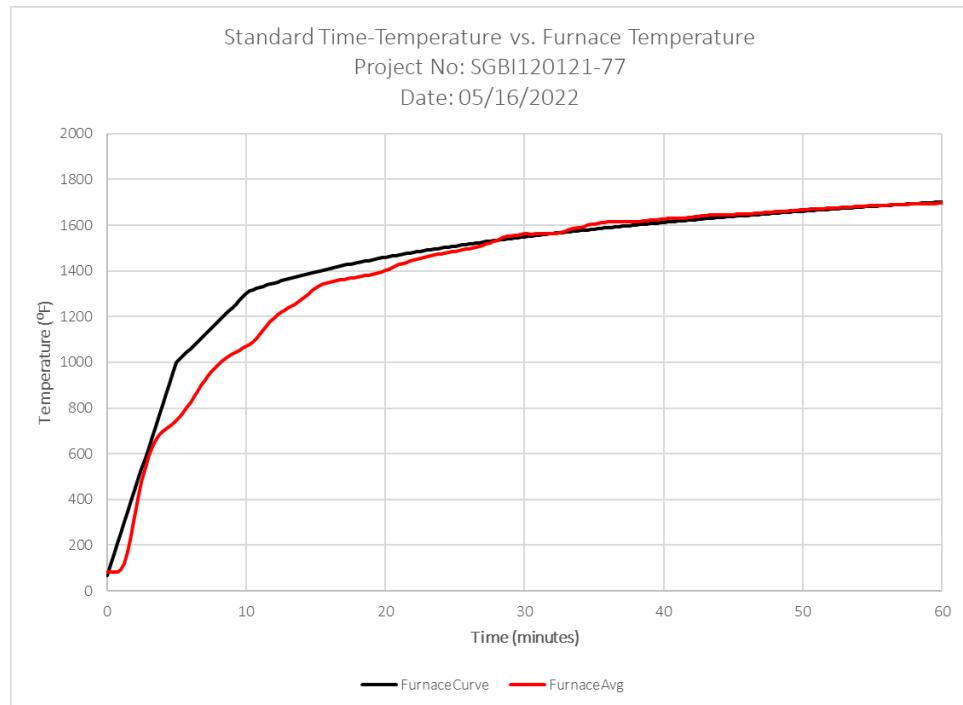


Figure No. 4
Hose Stream Retest Furnace Exposure

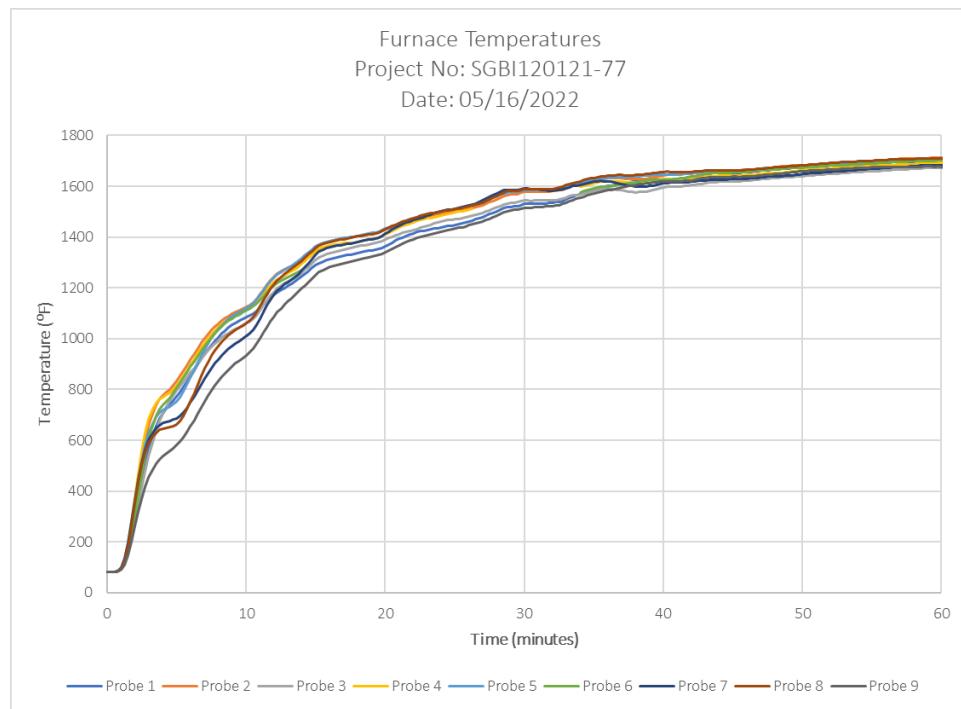


Figure No. 5
Hose Stream Retest Furnace Exposure

TABULAR DATA

Time (minutes)	Furnace Temperatures								
	Probe 1	Probe 2	Probe 3	Probe 4	Probe 5	Probe 6	Probe 7	Probe 8	Probe 9
0	55	55	55	55	55	55	55	55	55
0.25	55	55	55	55	55	55	55	55	55
0.5	55	56	56	55	55	55	55	55	55
0.75	63	64	58	60	57	57	57	58	57
1	88	101	70	82	75	67	70	77	71
1.25	137	176	96	129	115	94	102	123	102
1.5	198	282	144	204	177	146	159	201	154
1.75	274	394	211	297	265	221	235	302	221
2	356	499	287	389	361	306	311	400	291
2.25	431	583	361	473	451	390	379	484	354
2.5	499	642	434	542	529	465	439	547	405
2.75	556	683	505	594	589	528	488	593	448
3	600	710	561	631	633	577	527	624	480
3.25	632	727	604	656	664	610	556	644	505
3.5	654	736	635	673	684	633	576	656	523
3.75	668	740	657	683	697	648	590	662	537
4	680	743	674	690	704	658	599	665	547
4.25	692	750	690	696	710	666	607	666	555
4.5	705	765	707	706	716	675	615	668	563
4.75	721	786	724	719	727	689	624	671	573
5	740	812	743	737	744	707	635	679	587
5.25	763	840	765	758	767	729	648	691	606
5.5	790	870	789	784	795	754	664	709	631
5.75	820	901	815	813	828	781	683	733	660
6	851	932	842	844	863	811	705	761	691
6.25	885	965	871	878	902	843	732	796	726
6.5	921	1003	906	917	945	880	766	840	767
6.75	958	1041	943	958	991	919	806	887	810
7	991	1075	981	997	1034	959	847	935	852
7.25	1019	1106	1016	1033	1073	996	887	980	891
7.5	1045	1131	1047	1063	1108	1029	924	1019	927
7.75	1069	1153	1074	1090	1136	1058	955	1051	960
8	1089	1171	1096	1112	1160	1082	982	1077	990
8.25	1105	1185	1114	1130	1179	1101	1006	1099	1017
8.5	1119	1197	1130	1145	1195	1118	1025	1117	1041
8.75	1131	1207	1142	1158	1208	1133	1042	1132	1062
9	1142	1215	1153	1169	1218	1144	1056	1145	1081
9.25	1152	1223	1161	1179	1227	1153	1068	1155	1098
9.5	1161	1230	1170	1189	1235	1162	1080	1165	1111
9.75	1169	1236	1179	1198	1242	1170	1090	1175	1122
10	1176	1242	1187	1206	1249	1177	1100	1184	1132
10.25	1184	1247	1194	1213	1256	1185	1109	1192	1142
10.5	1192	1254	1201	1220	1263	1192	1118	1200	1152
10.75	1199	1260	1209	1228	1270	1200	1127	1209	1163
11	1210	1270	1218	1240	1280	1210	1139	1222	1174
11.25	1223	1281	1230	1254	1292	1222	1156	1240	1188
11.5	1236	1295	1243	1268	1304	1235	1175	1258	1202
11.75	1251	1308	1256	1282	1318	1247	1194	1277	1217
12	1265	1322	1270	1297	1332	1262	1214	1296	1232
12.25	1278	1335	1285	1312	1346	1277	1234	1315	1248
12.5	1291	1348	1300	1327	1361	1292	1254	1334	1262
12.75	1303	1360	1314	1340	1374	1306	1272	1350	1276
13	1314	1370	1325	1352	1384	1318	1288	1364	1288
13.25	1324	1379	1335	1362	1394	1329	1301	1376	1299
13.5	1333	1387	1345	1372	1402	1338	1313	1387	1308
13.75	1341	1394	1353	1380	1409	1346	1324	1396	1317
14	1348	1401	1360	1387	1415	1353	1333	1403	1324

Furnace Temperatures									
Time (minutes)	Probe 1	Probe 2	Probe 3	Probe 4	Probe 5	Probe 6	Probe 7	Probe 8	Probe 9
14.25	1354	1407	1367	1392	1421	1360	1342	1410	1331
14.5	1359	1412	1374	1398	1427	1366	1349	1416	1337
14.75	1365	1417	1379	1404	1432	1372	1355	1421	1343
15	1368	1420	1385	1408	1437	1378	1360	1425	1347
15.25	1372	1424	1390	1412	1441	1383	1365	1429	1352
15.5	1376	1427	1394	1416	1444	1387	1369	1433	1357
15.75	1378	1428	1396	1417	1446	1389	1370	1433	1361
16	1380	1429	1396	1418	1447	1390	1368	1432	1363
16.25	1380	1429	1397	1418	1447	1391	1367	1430	1365
16.5	1381	1430	1397	1419	1448	1392	1365	1428	1367
16.75	1380	1431	1398	1418	1448	1392	1364	1427	1369
17	1381	1431	1399	1419	1448	1392	1364	1427	1371
17.25	1382	1432	1400	1421	1450	1393	1365	1428	1371
17.5	1384	1433	1401	1424	1451	1395	1367	1430	1372
17.75	1386	1434	1403	1426	1452	1397	1369	1432	1374
18	1388	1436	1405	1428	1454	1400	1373	1436	1377
18.25	1394	1440	1409	1433	1459	1404	1379	1442	1381
18.5	1400	1445	1414	1439	1465	1409	1388	1450	1386
18.75	1408	1451	1419	1446	1470	1414	1397	1458	1392
19	1415	1456	1424	1453	1475	1419	1407	1466	1398
19.25	1421	1461	1429	1459	1481	1424	1416	1474	1403
19.5	1427	1466	1434	1465	1486	1429	1423	1481	1409
19.75	1432	1471	1440	1471	1491	1434	1429	1486	1413
20	1437	1475	1444	1476	1496	1440	1435	1492	1417
20.25	1441	1478	1449	1481	1501	1445	1441	1497	1421
20.5	1444	1482	1453	1485	1505	1450	1447	1502	1425
20.75	1449	1485	1457	1489	1509	1453	1454	1507	1429
21	1452	1488	1461	1492	1513	1456	1460	1512	1432
21.25	1456	1490	1464	1496	1517	1460	1464	1516	1436
21.5	1459	1493	1467	1500	1521	1465	1469	1520	1438
21.75	1462	1495	1470	1504	1524	1470	1473	1523	1441
22	1464	1497	1473	1506	1526	1473	1475	1525	1443
22.25	1464	1498	1474	1508	1527	1474	1476	1526	1444
22.5	1465	1499	1476	1508	1528	1474	1477	1527	1446
22.75	1465	1500	1477	1508	1528	1474	1477	1527	1448
23	1466	1501	1477	1510	1529	1475	1478	1528	1449
23.25	1467	1502	1478	1510	1530	1476	1479	1529	1450
23.5	1468	1503	1479	1511	1531	1477	1480	1530	1451
23.75	1469	1504	1480	1511	1531	1478	1481	1530	1453
24	1470	1505	1481	1512	1532	1480	1482	1531	1454
24.25	1471	1506	1482	1513	1533	1482	1484	1532	1455
24.5	1473	1507	1484	1514	1535	1484	1486	1534	1457
24.75	1475	1508	1485	1515	1536	1486	1489	1536	1459
25	1478	1510	1486	1518	1538	1488	1491	1538	1461
25.25	1483	1514	1489	1521	1541	1491	1495	1542	1464
25.5	1487	1519	1491	1525	1545	1495	1499	1546	1468
25.75	1492	1523	1495	1530	1549	1498	1504	1551	1472
26	1499	1527	1498	1535	1553	1501	1509	1555	1476
26.25	1504	1530	1501	1539	1556	1504	1513	1559	1480
26.5	1508	1534	1504	1542	1559	1507	1517	1563	1483
26.75	1510	1537	1508	1545	1562	1510	1521	1567	1487
27	1515	1541	1511	1548	1565	1513	1524	1570	1491
27.25	1517	1544	1514	1552	1568	1516	1527	1573	1495
27.5	1520	1547	1517	1555	1571	1520	1530	1576	1499
27.75	1523	1550	1520	1558	1574	1523	1532	1579	1502
28	1526	1553	1523	1561	1577	1526	1534	1581	1505
28.25	1529	1556	1526	1563	1580	1529	1537	1584	1508
28.5	1530	1559	1529	1566	1583	1532	1539	1587	1511
28.75	1532	1562	1533	1569	1585	1535	1543	1590	1514
29	1536	1565	1535	1573	1588	1538	1545	1592	1517

Furnace Temperatures									
Time (minutes)	Probe 1	Probe 2	Probe 3	Probe 4	Probe 5	Probe 6	Probe 7	Probe 8	Probe 9
29.25	1540	1568	1538	1576	1591	1542	1547	1594	1522
29.5	1544	1572	1541	1579	1594	1545	1550	1597	1526
29.75	1548	1575	1544	1582	1596	1549	1552	1600	1530
30	1551	1578	1548	1585	1599	1552	1555	1602	1534
30.25	1555	1582	1552	1589	1602	1555	1558	1606	1538
30.5	1559	1586	1555	1593	1605	1557	1560	1609	1542
30.75	1562	1591	1559	1596	1608	1561	1563	1612	1547
31	1567	1594	1563	1601	1612	1565	1566	1615	1551
31.25	1571	1599	1567	1606	1616	1568	1570	1619	1556
31.5	1574	1604	1571	1611	1621	1572	1574	1623	1561
31.75	1578	1609	1576	1615	1625	1576	1577	1627	1566
32	1584	1613	1581	1620	1630	1580	1581	1631	1571
32.25	1591	1619	1587	1626	1636	1585	1585	1635	1577
32.5	1597	1625	1593	1632	1642	1591	1589	1640	1583
32.75	1602	1631	1599	1637	1648	1597	1594	1644	1589
33	1606	1634	1603	1640	1651	1600	1596	1645	1593
33.25	1608	1637	1606	1642	1653	1603	1597	1646	1597
33.5	1611	1640	1609	1643	1654	1605	1598	1646	1600
33.75	1615	1642	1611	1645	1656	1607	1598	1647	1603
34	1619	1644	1614	1648	1658	1610	1599	1648	1608
34.25	1622	1646	1616	1651	1660	1613	1600	1649	1612
34.5	1623	1646	1617	1651	1661	1613	1599	1647	1614
34.75	1623	1646	1617	1650	1660	1613	1596	1644	1615
35	1623	1646	1616	1648	1659	1613	1593	1640	1617
35.25	1625	1646	1615	1647	1659	1614	1590	1637	1618
35.5	1626	1646	1615	1647	1658	1614	1588	1636	1619
35.75	1627	1646	1614	1647	1658	1614	1588	1635	1621
36	1630	1648	1615	1648	1659	1615	1588	1635	1623
36.25	1634	1650	1616	1650	1660	1616	1588	1635	1625
36.5	1637	1652	1618	1652	1662	1618	1589	1636	1627
36.75	1639	1654	1620	1655	1663	1620	1590	1638	1630
37	1641	1657	1622	1657	1665	1621	1592	1641	1633
37.25	1645	1659	1624	1660	1668	1624	1594	1643	1637
37.5	1650	1663	1627	1663	1670	1627	1596	1646	1640
37.75	1654	1666	1630	1667	1673	1630	1599	1649	1644
38	1659	1668	1633	1670	1676	1634	1602	1652	1648
38.25	1663	1672	1636	1674	1679	1638	1605	1656	1651
38.5	1665	1675	1639	1678	1683	1642	1608	1658	1655
38.75	1668	1678	1642	1680	1686	1645	1612	1661	1659
39	1670	1679	1643	1682	1688	1648	1615	1663	1662
39.25	1673	1681	1644	1682	1690	1650	1617	1664	1663
39.5	1674	1683	1646	1682	1692	1653	1619	1665	1665
39.75	1675	1684	1647	1682	1694	1656	1622	1667	1668
40	1675	1686	1648	1683	1696	1659	1625	1668	1670
40.25	1677	1688	1650	1685	1699	1662	1628	1670	1672
40.5	1680	1690	1652	1687	1702	1665	1630	1673	1673
40.75	1680	1690	1653	1687	1701	1666	1630	1673	1670
41	1678	1689	1654	1685	1700	1667	1628	1670	1666
41.25	1675	1688	1655	1682	1697	1667	1626	1667	1662
41.5	1674	1686	1656	1679	1695	1666	1625	1664	1658
41.75	1672	1685	1656	1678	1694	1665	1624	1662	1656
42	1670	1684	1656	1676	1692	1665	1623	1659	1653
42.25	1668	1683	1656	1674	1692	1665	1623	1657	1651
42.5	1667	1683	1655	1673	1691	1665	1623	1655	1650
42.75	1665	1683	1656	1672	1690	1666	1624	1653	1648
43	1664	1682	1656	1672	1690	1667	1625	1651	1648
43.25	1663	1682	1657	1671	1690	1668	1627	1650	1647
43.5	1662	1681	1658	1671	1690	1668	1628	1649	1646
43.75	1661	1681	1658	1671	1690	1668	1629	1649	1646
44	1662	1681	1657	1672	1690	1667	1630	1651	1647

Furnace Temperatures									
Time (minutes)	Probe 1	Probe 2	Probe 3	Probe 4	Probe 5	Probe 6	Probe 7	Probe 8	Probe 9
44.25	1662	1681	1656	1672	1690	1667	1630	1652	1648
44.5	1662	1681	1656	1673	1691	1667	1631	1653	1649
44.75	1662	1682	1658	1673	1691	1669	1632	1654	1651
45	1662	1682	1659	1672	1691	1670	1633	1655	1652
45.25	1662	1682	1660	1671	1691	1671	1635	1656	1653
45.5	1662	1681	1660	1671	1691	1672	1637	1659	1653
45.75	1663	1681	1661	1671	1691	1672	1638	1661	1654
46	1663	1682	1662	1673	1691	1673	1640	1663	1655
46.25	1664	1683	1662	1674	1693	1674	1641	1664	1656
46.5	1666	1684	1662	1676	1694	1674	1643	1666	1656
46.75	1668	1685	1662	1678	1694	1674	1645	1667	1657
47	1670	1686	1663	1680	1695	1675	1646	1669	1657
47.25	1671	1687	1663	1681	1695	1677	1647	1670	1659
47.5	1672	1688	1664	1682	1696	1677	1648	1671	1660
47.75	1673	1688	1664	1683	1697	1678	1650	1672	1662
48	1674	1689	1664	1684	1699	1679	1652	1673	1663
48.25	1675	1690	1664	1685	1700	1680	1653	1674	1664
48.5	1676	1691	1665	1685	1701	1682	1655	1674	1667
48.75	1676	1693	1666	1685	1702	1684	1656	1673	1669
49	1676	1694	1668	1685	1703	1686	1657	1673	1672
49.25	1676	1695	1670	1685	1703	1689	1658	1673	1674
49.5	1675	1695	1672	1683	1703	1691	1659	1672	1675
49.75	1675	1695	1674	1682	1704	1692	1660	1671	1675
50	1675	1695	1676	1682	1703	1693	1661	1670	1674
50.25	1674	1695	1677	1681	1703	1694	1661	1670	1673
50.5	1674	1696	1678	1680	1703	1694	1662	1670	1674
50.75	1674	1696	1679	1680	1703	1695	1662	1670	1674
51	1675	1696	1680	1680	1703	1695	1663	1670	1675
51.25	1674	1696	1681	1680	1703	1696	1663	1669	1675
51.5	1674	1696	1681	1680	1703	1696	1663	1669	1675
51.75	1674	1696	1682	1680	1704	1696	1663	1669	1676
52	1674	1696	1683	1680	1704	1696	1663	1668	1677
52.25	1674	1696	1683	1680	1704	1697	1664	1668	1678
52.5	1674	1697	1683	1680	1704	1697	1663	1668	1679
52.75	1674	1698	1684	1680	1704	1698	1663	1668	1681
53	1675	1698	1684	1680	1705	1697	1664	1669	1681
53.25	1675	1698	1685	1681	1705	1698	1664	1670	1682
53.5	1676	1698	1686	1681	1705	1699	1664	1670	1683
53.75	1677	1699	1686	1682	1705	1699	1664	1671	1684
54	1677	1699	1686	1682	1705	1701	1663	1671	1685
54.25	1678	1700	1686	1682	1705	1701	1662	1671	1685
54.5	1678	1700	1686	1683	1705	1701	1661	1671	1685
54.75	1678	1699	1686	1683	1705	1702	1659	1671	1686
55	1678	1699	1686	1683	1704	1702	1659	1671	1686
55.25	1679	1699	1686	1683	1704	1704	1658	1671	1686
55.5	1679	1700	1688	1683	1704	1705	1658	1671	1687
55.75	1680	1701	1688	1683	1704	1706	1657	1671	1687
56	1680	1701	1688	1683	1704	1707	1657	1672	1687
56.25	1681	1701	1688	1683	1704	1707	1656	1672	1688
56.5	1681	1701	1687	1684	1704	1707	1656	1672	1689
56.75	1682	1701	1687	1684	1704	1707	1657	1673	1689
57	1682	1702	1688	1684	1705	1708	1657	1673	1689
57.25	1682	1702	1688	1684	1704	1708	1658	1673	1690
57.5	1683	1702	1689	1684	1704	1709	1658	1673	1690
57.75	1684	1702	1689	1684	1705	1709	1659	1674	1690
58	1684	1702	1690	1685	1705	1708	1659	1674	1690
58.25	1684	1703	1691	1685	1706	1709	1659	1673	1690
58.5	1685	1703	1690	1686	1706	1708	1658	1673	1689
58.75	1685	1702	1689	1686	1706	1707	1658	1674	1689
59	1685	1702	1688	1686	1706	1706	1657	1674	1689

Furnace Temperatures									
Time (minutes)	Probe 1	Probe 2	Probe 3	Probe 4	Probe 5	Probe 6	Probe 7	Probe 8	Probe 9
59.25	1685	1703	1688	1686	1706	1707	1657	1674	1689
59.5	1685	1703	1688	1687	1706	1708	1657	1675	1690
59.75	1685	1703	1688	1687	1706	1708	1656	1675	1690
60	1684	1703	1688	1687	1706	1709	1656	1675	1691
60.25	1685	1704	1688	1687	1706	1710	1656	1675	1691
60.5	1685	1704	1688	1687	1707	1710	1656	1675	1692
60.75	1685	1704	1689	1687	1707	1710	1656	1675	1693
61	1686	1704	1689	1687	1708	1709	1656	1675	1693
61.25	1687	1705	1689	1687	1709	1709	1656	1676	1692
61.5	1687	1705	1688	1688	1709	1708	1656	1676	1692
61.75	1687	1705	1688	1688	1710	1708	1657	1676	1692
62	1687	1705	1687	1688	1710	1707	1658	1677	1692
62.25	1688	1705	1688	1689	1710	1708	1658	1677	1693
62.5	1689	1705	1688	1690	1711	1708	1659	1678	1693
62.75	1689	1705	1688	1691	1712	1709	1659	1678	1694
63	1690	1706	1689	1691	1713	1709	1660	1678	1695
63.25	1691	1706	1689	1692	1713	1709	1660	1679	1695
63.5	1691	1707	1689	1693	1714	1709	1660	1680	1696
63.75	1693	1709	1689	1696	1716	1710	1662	1683	1698
64	1697	1712	1691	1699	1720	1712	1663	1685	1701
64.25	1699	1715	1693	1701	1723	1713	1665	1688	1705
64.5	1702	1717	1694	1704	1726	1715	1667	1690	1708
64.75	1704	1720	1696	1706	1728	1718	1669	1692	1711
65	1707	1722	1698	1708	1731	1721	1671	1695	1714
65.25	1709	1723	1700	1711	1733	1723	1673	1697	1716
65.5	1711	1725	1701	1713	1735	1725	1675	1699	1718
65.75	1713	1727	1704	1714	1737	1728	1677	1700	1720
66	1714	1729	1706	1715	1738	1730	1678	1702	1722
66.25	1716	1731	1708	1717	1740	1732	1680	1704	1723
66.5	1718	1732	1709	1719	1742	1733	1682	1705	1725
66.75	1719	1734	1710	1720	1743	1735	1684	1707	1726
67	1720	1735	1712	1721	1744	1737	1686	1708	1728
67.25	1722	1737	1714	1722	1746	1739	1687	1710	1730
67.5	1723	1739	1717	1723	1747	1740	1688	1711	1731
67.75	1725	1741	1718	1724	1748	1741	1690	1712	1733
68	1726	1742	1719	1726	1749	1742	1691	1713	1734
68.25	1728	1744	1720	1728	1751	1742	1693	1715	1735
68.5	1729	1745	1721	1730	1753	1743	1695	1716	1736
68.75	1730	1746	1722	1731	1754	1744	1696	1718	1738
69	1731	1748	1724	1732	1756	1746	1698	1720	1740
69.25	1732	1750	1727	1734	1757	1748	1699	1722	1741
69.5	1734	1751	1729	1736	1759	1750	1701	1724	1743
69.75	1735	1753	1731	1737	1760	1752	1703	1726	1745
70	1736	1754	1733	1737	1761	1752	1704	1727	1746
70.25	1737	1754	1734	1737	1761	1753	1705	1727	1746
70.5	1737	1755	1735	1737	1761	1754	1706	1727	1746
70.75	1738	1755	1735	1737	1760	1755	1706	1727	1747
71	1738	1755	1735	1738	1760	1756	1708	1727	1748
71.25	1738	1756	1735	1739	1761	1757	1709	1728	1748
71.5	1739	1756	1736	1740	1761	1758	1710	1729	1749
71.75	1740	1757	1737	1740	1762	1758	1711	1730	1749
72	1740	1758	1738	1741	1764	1759	1712	1731	1749
72.25	1741	1759	1740	1742	1765	1760	1713	1733	1750
72.5	1742	1760	1742	1744	1767	1760	1714	1735	1751
72.75	1742	1761	1743	1745	1768	1761	1715	1736	1752
73	1744	1762	1744	1746	1769	1762	1716	1737	1753
73.25	1745	1764	1745	1747	1771	1763	1717	1738	1754
73.5	1747	1765	1746	1748	1772	1765	1719	1739	1755
73.75	1749	1766	1746	1749	1773	1766	1720	1740	1756
74	1750	1768	1748	1750	1774	1768	1722	1742	1758

Furnace Temperatures									
Time (minutes)	Probe 1	Probe 2	Probe 3	Probe 4	Probe 5	Probe 6	Probe 7	Probe 8	Probe 9
74.25	1751	1770	1750	1752	1776	1769	1724	1744	1760
74.5	1753	1771	1751	1754	1778	1771	1726	1746	1762
74.75	1754	1773	1754	1756	1780	1773	1728	1748	1763
75	1756	1775	1756	1758	1781	1775	1730	1750	1765
75.25	1756	1777	1758	1759	1782	1778	1732	1752	1768
75.5	1757	1778	1760	1760	1784	1779	1734	1754	1769
75.75	1757	1778	1760	1761	1785	1780	1735	1755	1770
76	1759	1779	1761	1763	1786	1781	1737	1757	1770
76.25	1759	1780	1762	1764	1787	1781	1738	1758	1771
76.5	1760	1781	1764	1765	1788	1782	1740	1759	1772
76.75	1761	1783	1766	1766	1789	1783	1741	1760	1773
77	1761	1783	1767	1766	1789	1785	1742	1761	1774
77.25	1761	1784	1768	1767	1790	1786	1743	1762	1774
77.5	1761	1784	1768	1767	1790	1787	1744	1762	1775
77.75	1762	1784	1768	1768	1791	1787	1745	1763	1775
78	1762	1785	1769	1769	1791	1788	1746	1764	1775
78.25	1763	1786	1770	1769	1792	1789	1747	1765	1775
78.5	1763	1786	1771	1769	1791	1791	1747	1764	1775
78.75	1762	1786	1772	1769	1791	1792	1747	1763	1776
79	1761	1786	1774	1769	1791	1793	1746	1762	1776
79.25	1761	1786	1774	1769	1791	1792	1746	1762	1775
79.5	1761	1786	1774	1770	1792	1793	1746	1763	1776
79.75	1761	1787	1775	1770	1792	1795	1747	1763	1776
80	1762	1788	1776	1771	1792	1796	1747	1764	1777
80.25	1762	1788	1775	1771	1793	1796	1748	1765	1776
80.5	1763	1789	1775	1772	1794	1796	1749	1766	1777
80.75	1763	1789	1777	1773	1794	1798	1750	1767	1779
81	1765	1790	1778	1773	1795	1800	1751	1768	1780
81.25	1766	1791	1780	1774	1796	1801	1753	1769	1782
81.5	1767	1792	1782	1775	1796	1803	1754	1770	1784
81.75	1767	1792	1783	1775	1796	1804	1755	1770	1785
82	1768	1792	1783	1775	1796	1803	1755	1770	1785
82.25	1768	1792	1783	1775	1796	1803	1756	1771	1784
82.5	1768	1792	1784	1775	1796	1803	1756	1771	1785
82.75	1768	1792	1784	1776	1796	1804	1757	1771	1786
83	1769	1792	1784	1776	1796	1805	1757	1771	1786
83.25	1770	1792	1784	1777	1796	1804	1757	1771	1785
83.5	1767	1787	1781	1774	1792	1799	1754	1769	1781
83.75	1762	1781	1776	1770	1787	1794	1750	1765	1777
84	1758	1775	1772	1766	1781	1788	1746	1760	1772
84.25	1754	1771	1767	1762	1776	1784	1742	1756	1767
84.5	1752	1769	1765	1760	1774	1780	1739	1755	1764
84.75	1751	1769	1764	1760	1774	1780	1739	1754	1764
85	1752	1771	1765	1761	1776	1782	1740	1755	1764
85.25	1755	1775	1768	1764	1780	1786	1742	1758	1767
85.5	1759	1779	1772	1767	1785	1790	1745	1760	1771
85.75	1762	1783	1775	1770	1789	1793	1748	1764	1773
86	1765	1786	1778	1773	1793	1796	1751	1767	1776
86.25	1768	1790	1781	1776	1796	1799	1754	1770	1779
86.5	1771	1793	1783	1779	1799	1801	1756	1773	1782
86.75	1774	1796	1785	1781	1802	1804	1759	1775	1785
87	1776	1799	1786	1784	1805	1806	1761	1778	1787
87.25	1779	1801	1788	1786	1807	1808	1763	1780	1790
87.5	1781	1803	1789	1789	1809	1810	1765	1783	1793
87.75	1783	1805	1791	1791	1811	1812	1768	1785	1796
88	1784	1808	1794	1793	1813	1815	1770	1787	1798
88.25	1786	1810	1796	1795	1815	1817	1773	1789	1801
88.5	1788	1812	1799	1797	1818	1820	1774	1791	1804
88.75	1789	1813	1801	1799	1819	1821	1775	1791	1804
89	1790	1814	1802	1800	1820	1822	1776	1792	1804

Furnace Temperatures									
Time (minutes)	Probe 1	Probe 2	Probe 3	Probe 4	Probe 5	Probe 6	Probe 7	Probe 8	Probe 9
89.25	1790	1814	1802	1801	1820	1823	1778	1793	1805
89.5	1791	1814	1802	1800	1820	1825	1779	1794	1805
89.75	1791	1813	1802	1800	1819	1825	1779	1794	1805
90	1791	1813	1802	1800	1819	1825	1779	1794	1805
90.25	1791	1813	1802	1800	1819	1824	1779	1794	1805
90.5	1791	1813	1802	1800	1820	1824	1780	1795	1805
90.75	1791	1813	1803	1801	1820	1825	1780	1795	1805
91	1792	1814	1805	1801	1820	1826	1780	1795	1806
91.25	1793	1815	1806	1802	1821	1827	1781	1796	1807
91.5	1794	1815	1806	1803	1822	1827	1781	1796	1807
91.75	1793	1813	1805	1802	1820	1825	1781	1795	1806
92	1791	1810	1804	1800	1818	1823	1779	1794	1804
92.25	1789	1809	1802	1798	1816	1821	1777	1792	1801
92.5	1787	1806	1800	1797	1814	1819	1776	1790	1800
92.75	1786	1805	1799	1795	1812	1818	1774	1788	1799
93	1784	1803	1798	1794	1810	1817	1772	1786	1798
93.25	1784	1802	1797	1793	1809	1816	1771	1786	1798
93.5	1784	1803	1796	1793	1809	1817	1771	1786	1797
93.75	1784	1804	1797	1794	1810	1818	1771	1786	1797
94	1785	1805	1797	1795	1811	1819	1772	1787	1797
94.25	1786	1806	1798	1796	1812	1820	1773	1788	1798
94.5	1787	1806	1799	1796	1812	1822	1774	1789	1799
94.75	1788	1807	1800	1797	1813	1823	1775	1789	1801
95	1788	1807	1801	1797	1813	1825	1776	1790	1802
95.25	1788	1808	1802	1798	1814	1826	1776	1791	1802
95.5	1789	1809	1804	1798	1815	1827	1777	1791	1803
95.75	1789	1810	1805	1799	1816	1827	1778	1792	1803
96	1790	1811	1805	1800	1818	1827	1778	1792	1803
96.25	1791	1812	1806	1801	1819	1827	1779	1793	1804
96.5	1791	1812	1807	1802	1819	1828	1779	1793	1805
96.75	1792	1813	1807	1802	1820	1829	1780	1794	1806
97	1793	1813	1808	1803	1820	1830	1780	1795	1807
97.25	1794	1813	1808	1804	1821	1831	1781	1795	1807
97.5	1794	1814	1809	1804	1822	1831	1781	1795	1807
97.75	1795	1814	1809	1805	1823	1831	1782	1796	1807
98	1795	1815	1809	1805	1823	1831	1783	1797	1807
98.25	1796	1816	1810	1806	1824	1832	1783	1798	1808
98.5	1797	1817	1810	1807	1824	1832	1784	1799	1809
98.75	1797	1817	1811	1807	1825	1833	1785	1799	1809
99	1798	1818	1811	1808	1826	1832	1785	1800	1809
99.25	1799	1819	1811	1809	1827	1831	1785	1800	1809
99.5	1800	1819	1812	1810	1828	1832	1786	1801	1809
99.75	1800	1820	1812	1810	1828	1832	1786	1801	1809
100	1801	1820	1812	1811	1828	1833	1786	1801	1810
100.25	1802	1821	1813	1812	1829	1834	1787	1802	1810
100.5	1802	1821	1814	1812	1829	1834	1787	1802	1811
100.75	1802	1822	1815	1812	1830	1835	1788	1802	1811
101	1802	1822	1816	1812	1830	1836	1788	1803	1812
101.25	1803	1822	1816	1813	1830	1837	1788	1803	1813
101.5	1804	1822	1817	1813	1830	1837	1789	1803	1813
101.75	1804	1823	1817	1814	1831	1838	1789	1804	1814
102	1805	1824	1817	1815	1831	1839	1790	1805	1815
102.25	1805	1825	1818	1816	1832	1839	1790	1805	1814
102.5	1806	1825	1818	1816	1833	1839	1791	1806	1814
102.75	1806	1825	1818	1816	1833	1839	1791	1806	1814
103	1806	1825	1817	1816	1833	1838	1791	1806	1815
103.25	1805	1825	1817	1816	1833	1839	1791	1806	1815
103.5	1805	1824	1817	1815	1833	1839	1791	1806	1816
103.75	1805	1824	1817	1816	1833	1838	1791	1806	1816
104	1806	1824	1818	1816	1832	1838	1791	1806	1817

Furnace Temperatures									
Time (minutes)	Probe 1	Probe 2	Probe 3	Probe 4	Probe 5	Probe 6	Probe 7	Probe 8	Probe 9
104.25	1806	1824	1818	1816	1833	1838	1791	1806	1816
104.5	1805	1824	1818	1816	1833	1838	1792	1806	1816
104.75	1805	1823	1818	1816	1833	1840	1792	1807	1818
105	1806	1823	1819	1816	1833	1841	1792	1807	1818
105.25	1806	1824	1819	1816	1833	1842	1793	1807	1818
105.5	1807	1824	1819	1817	1834	1842	1793	1807	1818
105.75	1807	1825	1819	1817	1834	1841	1793	1808	1818
106	1807	1826	1819	1818	1835	1840	1793	1808	1818
106.25	1808	1826	1819	1818	1835	1840	1794	1808	1818
106.5	1808	1827	1820	1819	1835	1842	1794	1809	1819
106.75	1809	1827	1821	1819	1835	1843	1794	1809	1819
107	1809	1827	1821	1819	1836	1843	1794	1809	1819
107.25	1809	1827	1821	1819	1836	1843	1794	1810	1819
107.5	1810	1828	1822	1820	1836	1843	1795	1810	1820
107.75	1811	1828	1822	1820	1837	1844	1795	1810	1820
108	1811	1829	1823	1821	1838	1843	1795	1811	1820
108.25	1812	1830	1823	1822	1838	1843	1796	1811	1821
108.5	1812	1830	1824	1822	1839	1842	1796	1812	1821
108.75	1812	1831	1824	1823	1839	1843	1796	1812	1821
109	1813	1831	1824	1823	1839	1844	1797	1812	1821
109.25	1814	1832	1825	1824	1840	1844	1797	1813	1821
109.5	1814	1832	1824	1824	1840	1844	1798	1813	1821
109.75	1815	1833	1824	1825	1841	1844	1798	1813	1821
110	1815	1833	1825	1825	1841	1844	1799	1814	1821
110.25	1815	1833	1825	1825	1842	1844	1799	1814	1822
110.5	1816	1833	1825	1826	1842	1844	1799	1815	1822
110.75	1815	1834	1826	1826	1843	1844	1800	1815	1823
111	1816	1834	1826	1826	1843	1845	1800	1816	1824
111.25	1816	1834	1826	1826	1843	1846	1801	1816	1824
111.5	1817	1835	1826	1827	1844	1845	1801	1816	1824
111.75	1818	1835	1826	1827	1845	1844	1801	1817	1824
112	1818	1835	1827	1828	1846	1844	1801	1817	1824
112.25	1819	1835	1827	1828	1846	1845	1801	1817	1824
112.5	1818	1834	1827	1827	1845	1845	1801	1816	1824
112.75	1817	1833	1827	1827	1843	1846	1800	1816	1824
113	1817	1832	1826	1826	1842	1846	1800	1816	1824
113.25	1816	1831	1826	1825	1842	1846	1800	1815	1824
113.5	1816	1831	1826	1825	1841	1846	1799	1815	1824
113.75	1816	1831	1826	1825	1841	1846	1799	1815	1824
114	1816	1831	1826	1824	1840	1846	1799	1814	1824
114.25	1816	1831	1826	1824	1840	1846	1798	1814	1823
114.5	1815	1831	1825	1824	1841	1845	1798	1814	1823
114.75	1815	1831	1825	1824	1841	1845	1798	1814	1823
115	1816	1832	1825	1824	1841	1844	1798	1814	1822
115.25	1817	1834	1827	1826	1844	1846	1799	1815	1823
115.5	1820	1837	1830	1829	1846	1849	1801	1817	1825
115.75	1823	1840	1832	1832	1849	1853	1803	1819	1828
116	1825	1842	1835	1834	1852	1857	1805	1821	1831
116.25	1827	1845	1838	1836	1854	1859	1807	1823	1833
116.5	1828	1846	1839	1837	1855	1861	1808	1824	1834
116.75	1828	1846	1840	1837	1855	1861	1808	1825	1835
117	1827	1846	1840	1836	1854	1861	1808	1825	1835
117.25	1826	1844	1839	1835	1853	1860	1808	1824	1834
117.5	1826	1843	1838	1834	1851	1860	1807	1824	1834
117.75	1825	1842	1837	1834	1850	1860	1807	1823	1834
118	1825	1841	1837	1833	1850	1859	1807	1823	1834
118.25	1825	1841	1837	1833	1850	1858	1806	1823	1834
118.5	1825	1841	1837	1833	1850	1857	1806	1823	1833
118.75	1825	1841	1836	1833	1850	1857	1806	1823	1832
119	1825	1842	1836	1834	1851	1856	1806	1823	1832

Furnace Temperatures									
Time (minutes)	Probe 1	Probe 2	Probe 3	Probe 4	Probe 5	Probe 6	Probe 7	Probe 8	Probe 9
119.25	1825	1841	1836	1834	1850	1856	1806	1823	1832
119.5	1825	1842	1837	1833	1850	1857	1806	1823	1833
119.75	1825	1842	1837	1834	1851	1857	1806	1823	1833
120	1825	1842	1837	1834	1851	1857	1806	1823	1833

Unexposed Temperatures												
Time (minutes)	TC 1	TC 2	TC 3	TC 4	TC 5	TC 6	TC 7	TC 8	TC 9	TC 10	Average	
0	57	57	57	57	58	58	58	57	57	57	57	
0.25	57	57	57	57	58	58	58	57	58	57	57	
0.5	57	57	57	57	58	58	58	57	57	57	57	
0.75	57	57	57	57	58	58	58	57	58	57	57	
1	57	57	57	57	58	58	58	57	58	57	57	
1.25	57	57	57	57	58	58	58	57	58	57	57	
1.5	57	57	57	57	58	58	58	57	58	57	57	
1.75	57	57	57	57	58	58	58	57	58	57	57	
2	57	57	57	57	58	58	58	57	58	57	57	
2.25	57	57	57	57	58	58	58	57	58	57	57	
2.5	57	57	57	57	58	58	58	57	58	57	57	
2.75	57	57	57	57	58	58	58	57	58	57	57	
3	57	57	57	57	58	58	58	57	58	57	57	
3.25	57	57	57	57	58	58	58	57	58	57	57	
3.5	57	57	57	57	58	58	58	57	58	57	57	
3.75	57	57	57	57	58	58	58	57	58	57	57	
4	57	57	57	57	58	58	58	57	58	57	57	
4.25	57	57	57	57	58	58	58	57	58	57	57	
4.5	57	57	57	57	58	58	58	57	58	57	57	
4.75	57	57	57	57	58	58	58	57	58	57	57	
5	57	57	57	57	58	58	58	57	58	57	58	
5.25	57	57	57	57	58	58	58	57	58	57	58	
5.5	57	57	57	57	58	58	58	57	58	57	58	
5.75	57	57	57	57	58	58	58	57	58	57	58	
6	57	57	57	57	58	58	58	57	58	57	58	
6.25	57	57	57	57	58	58	58	57	58	57	58	
6.5	57	57	58	57	58	58	58	57	58	57	58	
6.75	57	57	58	57	58	58	58	57	58	57	58	
7	57	57	58	57	58	58	58	57	58	57	58	
7.25	57	57	57	57	58	58	58	57	58	57	58	
7.5	57	57	58	57	58	58	58	57	58	57	58	
7.75	57	57	58	57	58	58	58	57	58	57	58	
8	57	57	58	57	58	58	58	57	58	57	58	
8.25	57	57	58	57	58	58	58	57	58	57	58	
8.5	57	57	58	57	58	58	58	57	58	57	58	
8.75	57	57	58	57	58	58	58	57	58	57	58	
9	58	57	58	57	58	58	58	57	58	57	58	
9.25	58	57	58	57	58	58	58	57	58	57	58	
9.5	58	57	58	57	58	58	58	57	58	57	58	
9.75	58	57	58	57	58	58	58	57	58	57	58	
10	58	57	58	57	58	58	58	57	58	57	58	
10.25	57	57	58	57	58	58	58	57	58	57	58	
10.5	58	57	58	57	58	58	58	57	58	57	58	
10.75	58	57	58	57	58	58	58	57	58	57	58	
11	58	57	58	58	58	58	58	57	58	57	58	
11.25	58	57	58	58	58	58	58	57	58	57	58	
11.5	58	57	58	58	58	58	58	57	58	57	58	
11.75	58	57	58	58	58	58	58	57	58	57	58	
12	58	58	58	58	58	58	58	57	58	57	58	
12.25	58	58	58	58	58	58	58	57	58	57	58	
12.5	58	58	58	58	58	58	58	57	58	57	58	

Note: TC 10 for data only, not included in average

Unexposed Temperatures										
Time (minutes)	TC 1	TC 2	TC 3	TC 4	TC 5	TC 6	TC 7	TC 8	TC 9	Average
12.75	58	58	58	58	58	58	58	58	58	58
13	58	58	58	58	58	58	58	58	61	58
13.25	58	58	58	58	58	58	58	58	65	58
13.5	58	58	58	58	58	58	58	58	68	58
13.75	58	58	58	58	58	58	58	58	122	58
14	58	58	58	58	58	58	58	58	105	58
14.25	58	58	58	58	58	58	58	58	131	58
14.5	58	58	58	58	58	58	58	58	154	58
14.75	58	58	58	58	58	59	58	58	201	58
15	58	58	58	58	58	59	58	58	191	58
15.25	58	58	58	58	58	59	58	58	179	58
15.5	59	58	58	58	58	59	58	58	183	58
15.75	59	58	58	58	58	60	58	58	203	58
16	59	58	59	58	58	60	58	58	186	59
16.25	59	58	59	58	59	60	58	59	182	59
16.5	59	58	59	58	59	60	58	59	201	59
16.75	62	58	59	58	59	61	58	59	60	204
17	61	59	60	58	60	61	58	59	60	206
17.25	62	59	60	58	60	61	58	59	60	203
17.5	67	59	60	58	61	62	58	60	61	204
17.75	64	60	61	58	62	62	58	60	61	203
18	66	60	61	58	62	63	58	60	62	210
18.25	64	60	61	58	63	63	58	60	62	203
18.5	71	61	62	58	64	63	58	61	62	208
18.75	69	61	62	59	64	64	58	61	63	204
19	68	62	62	59	64	64	58	61	63	195
19.25	70	62	62	59	65	65	58	61	63	196
19.5	71	62	63	59	67	65	59	61	64	195
19.75	72	63	63	59	70	65	58	62	64	191
20	76	63	63	59	73	66	59	62	64	180
20.25	82	64	64	59	76	66	59	62	65	175
20.5	86	64	64	60	77	67	59	63	65	172
20.75	90	65	64	60	79	68	59	63	65	168
21	86	65	65	60	82	68	59	63	66	174
21.25	91	65	65	61	82	69	59	64	66	166
21.5	94	66	65	61	83	70	59	64	66	166
21.75	95	66	65	61	83	70	59	64	67	171
22	93	67	66	62	85	71	60	65	67	165
22.25	97	67	66	62	86	72	60	65	68	163
22.5	104	68	66	63	87	72	60	66	68	157
22.75	103	68	67	63	89	73	60	66	68	164
23	100	69	67	64	90	74	60	66	69	163
23.25	100	69	68	64	92	74	61	67	70	158
23.5	102	70	68	64	93	75	61	67	70	159
23.75	98	70	68	65	94	75	61	67	70	159
24	99	70	69	66	95	75	61	68	71	159
24.25	96	71	69	66	96	76	61	68	71	167
24.5	100	71	70	66	97	78	62	69	72	157
24.75	99	71	71	67	98	79	62	69	72	164
25	101	72	71	67	99	79	62	69	73	176
25.25	100	72	72	68	100	79	62	70	73	172
25.5	102	72	72	68	100	79	62	70	74	171
25.75	102	73	73	68	101	80	63	71	74	170
26	100	73	73	69	102	81	63	71	75	172
26.25	112	74	74	69	102	81	63	72	75	166
26.5	111	74	75	69	103	82	63	72	76	168
26.75	109	74	75	70	108	83	64	73	76	167
27	111	75	76	70	107	84	64	73	77	168
27.25	106	75	76	70	107	85	64	73	77	164
27.5	106	75	77	71	108	85	65	74	78	167

Unexposed Temperatures										
Time (minutes)	TC 1	TC 2	TC 3	TC 4	TC 5	TC 6	TC 7	TC 8	TC 9	Average
27.75	129	76	78	71	108	86	65	74	78	163
28	121	76	78	71	109	86	65	75	79	165
28.25	121	77	79	71	109	87	65	75	79	168
28.5	124	77	80	72	110	87	66	76	80	167
28.75	132	78	80	72	110	88	66	76	80	165
29	125	78	81	72	111	89	66	77	81	166
29.25	130	78	82	73	110	90	67	77	82	167
29.5	127	79	83	73	110	91	67	78	82	164
29.75	142	79	84	73	111	92	67	78	83	166
30	124	80	84	74	111	92	67	79	84	170
30.25	140	80	85	74	111	93	68	79	84	164
30.5	141	80	86	74	112	93	68	80	85	165
30.75	137	81	86	75	113	95	68	80	85	170
31	136	81	87	75	113	95	69	80	86	186
31.25	137	82	87	75	113	95	69	81	86	166
31.5	133	82	88	76	114	96	69	81	87	166
31.75	127	82	89	76	114	97	70	82	88	152
32	124	83	89	76	114	97	70	82	88	165
32.25	124	83	90	77	114	98	70	82	89	177
32.5	123	83	91	77	115	98	71	83	89	170
32.75	117	84	91	77	115	99	71	83	91	189
33	117	84	92	78	116	100	71	84	91	185
33.25	114	84	92	78	117	100	72	84	91	190
33.5	121	85	93	78	117	101	72	84	91	186
33.75	111	85	94	79	117	102	72	85	92	177
34	114	85	94	79	118	103	73	85	92	173
34.25	106	86	94	79	118	103	73	85	92	177
34.5	107	86	95	80	118	104	74	86	92	172
34.75	103	86	95	80	119	105	74	86	93	176
35	114	86	96	80	119	105	74	86	93	170
35.25	114	87	96	81	119	106	75	87	93	170
35.5	114	87	97	81	120	106	75	87	93	168
35.75	104	88	97	82	121	106	75	88	93	193
36	103	88	98	82	120	108	76	88	94	184
36.25	104	88	98	83	120	107	76	88	94	182
36.5	103	89	98	83	121	107	76	88	94	193
36.75	114	89	99	83	121	107	77	89	94	183
37	104	89	99	84	121	108	77	89	94	177
37.25	112	89	99	84	121	108	77	89	94	170
37.5	114	90	100	85	121	108	78	90	94	175
37.75	111	90	100	85	122	109	78	90	94	171
38	116	90	101	85	122	110	79	90	94	177
38.25	110	91	101	86	122	110	79	91	94	183
38.5	116	91	102	86	123	111	79	91	94	177
38.75	112	92	102	86	123	112	80	91	95	173
39	113	92	103	86	124	113	80	92	95	168
39.25	110	92	103	86	124	115	81	92	95	172
39.5	117	93	103	87	125	115	81	93	95	166
39.75	115	93	103	87	125	116	81	93	96	163
40	112	93	104	87	126	117	82	93	97	164
40.25	112	94	104	87	126	118	82	94	98	160
40.5	113	94	104	87	126	119	83	94	98	157
40.75	117	95	105	87	126	120	83	94	98	158
41	112	95	105	88	127	120	84	95	98	154
41.25	114	95	105	88	127	120	84	95	99	154
41.5	111	96	106	88	127	121	84	95	99	151
41.75	110	96	106	88	128	121	85	96	100	152
42	110	97	106	88	128	121	85	96	101	151
42.25	111	97	106	88	128	121	86	97	101	148
42.5	113	97	106	88	128	119	86	97	100	149

Unexposed Temperatures											
Time (minutes)	TC 1	TC 2	TC 3	TC 4	TC 5	TC 6	TC 7	TC 8	TC 9	TC 10	Average
42.75	113	97	106	89	128	119	86	97	100	147	104
43	112	98	106	89	128	120	87	98	100	146	104
43.25	113	98	106	89	128	120	87	98	100	147	104
43.5	113	99	107	89	128	119	88	98	100	147	105
43.75	112	99	107	89	129	119	88	99	100	148	105
44	114	99	107	90	129	118	88	99	100	147	105
44.25	111	100	107	90	129	118	89	100	101	148	105
44.5	112	100	107	90	129	117	89	100	101	148	105
44.75	112	101	107	91	129	118	90	100	101	148	105
45	113	101	107	91	129	117	90	101	101	147	106
45.25	112	101	107	91	129	117	91	101	101	148	105
45.5	110	102	106	91	129	116	91	101	101	150	105
45.75	111	102	106	92	129	115	91	101	102	151	106
46	111	102	106	92	129	115	92	102	102	152	106
46.25	110	103	105	92	129	115	92	102	102	154	106
46.5	107	103	105	92	129	113	93	102	102	155	105
46.75	106	103	104	93	129	112	93	102	103	155	105
47	106	103	104	93	129	113	93	102	103	155	105
47.25	106	104	104	94	129	113	94	103	103	155	105
47.5	108	104	103	94	129	115	94	103	103	155	106
47.75	109	104	104	94	130	112	95	103	103	155	106
48	110	105	104	95	130	112	95	103	104	155	106
48.25	110	105	103	95	130	111	96	104	104	155	106
48.5	112	105	104	95	130	111	96	104	104	155	107
48.75	114	106	104	96	130	111	96	104	104	155	107
49	115	106	104	96	130	110	97	104	104	155	107
49.25	113	106	104	97	130	108	97	104	105	155	107
49.5	114	107	104	97	130	108	97	105	105	154	107
49.75	115	107	104	97	131	110	98	105	105	155	108
50	115	107	104	98	130	109	98	105	105	155	108
50.25	112	108	104	98	131	109	98	105	106	154	108
50.5	110	108	104	99	131	108	99	105	106	154	108
50.75	110	108	104	99	131	109	99	105	106	154	108
51	112	108	104	99	131	108	99	105	106	154	108
51.25	112	109	104	100	131	107	99	106	107	154	108
51.5	111	109	103	100	131	107	100	106	107	154	108
51.75	112	109	104	100	131	106	100	106	107	154	108
52	113	109	104	101	131	106	100	106	107	154	109
52.25	114	109	104	101	131	105	101	106	108	154	109
52.5	113	110	104	101	131	106	101	106	108	154	109
52.75	114	110	104	102	132	106	101	106	108	154	109
53	113	110	104	102	131	106	101	106	108	154	109
53.25	115	110	104	102	131	107	102	106	109	154	110
53.5	115	111	104	103	131	107	102	107	109	154	110
53.75	115	111	104	103	132	107	102	107	109	154	110
54	116	111	105	103	132	107	102	107	109	154	110
54.25	117	111	105	104	132	106	103	107	110	154	110
54.5	117	112	105	104	132	105	103	107	110	154	111
54.75	117	112	105	104	132	105	103	107	110	154	111
55	114	112	105	105	132	105	104	107	110	154	110
55.25	115	112	106	105	132	104	104	107	110	153	111
55.5	117	113	106	106	133	104	104	107	111	153	111
55.75	118	113	106	106	133	104	104	108	111	153	111
56	120	113	106	106	133	105	105	108	111	153	112
56.25	116	113	107	106	133	105	105	108	111	153	112
56.5	117	114	107	107	134	107	105	108	112	153	112
56.75	121	114	107	107	134	104	105	108	112	153	113
57	119	114	108	107	134	105	106	108	112	153	113
57.25	120	114	108	108	135	105	106	109	112	153	113
57.5	121	115	108	108	135	105	106	109	113	154	113

Unexposed Temperatures										
Time (minutes)	TC 1	TC 2	TC 3	TC 4	TC 5	TC 6	TC 7	TC 8	TC 9	Average
57.75	122	115	109	108	135	105	106	109	113	114
58	124	115	109	109	136	105	106	109	113	114
58.25	122	115	109	109	136	105	107	109	113	114
58.5	123	116	109	109	137	106	107	109	114	114
58.75	122	116	109	109	137	106	107	110	114	115
59	117	116	110	110	137	107	108	110	114	114
59.25	115	116	110	110	137	107	108	110	114	114
59.5	119	116	111	110	138	107	108	110	114	115
59.75	120	117	111	111	139	107	107	110	115	115
60	119	117	111	111	139	108	108	110	115	115
60.25	119	117	112	111	139	108	108	110	115	115
60.5	118	117	112	111	140	109	108	110	115	116
60.75	118	117	112	112	140	109	108	110	115	116
61	116	117	113	112	140	108	109	110	116	116
61.25	118	117	113	112	140	108	109	111	116	116
61.5	116	117	114	112	141	108	108	111	116	116
61.75	118	117	114	113	141	108	108	111	116	116
62	119	117	115	113	141	109	109	111	116	117
62.25	122	118	115	113	142	109	109	111	116	117
62.5	121	118	115	113	142	109	109	111	117	117
62.75	116	118	116	113	142	108	109	111	117	117
63	114	118	117	114	143	108	109	112	117	117
63.25	119	118	117	114	143	109	108	112	117	117
63.5	119	119	117	114	144	109	108	112	117	118
63.75	115	119	118	115	144	109	109	112	117	118
64	117	119	119	115	144	109	108	113	118	118
64.25	118	119	119	115	145	109	109	113	118	118
64.5	121	119	120	115	145	109	109	113	118	119
64.75	116	120	120	116	146	110	109	113	118	118
65	117	120	120	116	146	110	109	113	118	119
65.25	118	120	121	116	146	110	109	113	118	119
65.5	123	120	121	116	147	110	110	113	119	120
65.75	120	120	122	116	147	110	110	113	119	120
66	118	120	122	116	147	110	110	114	119	120
66.25	116	120	123	117	148	110	111	114	119	120
66.5	115	120	124	117	148	110	111	114	119	120
66.75	114	121	124	117	148	109	111	114	119	120
67	113	121	124	117	148	110	112	114	120	120
67.25	112	121	125	118	149	110	112	114	120	120
67.5	111	121	125	118	149	110	113	114	120	120
67.75	116	121	126	118	150	110	113	115	120	121
68	115	122	126	118	150	110	113	115	120	121
68.25	114	122	127	119	151	110	114	115	121	121
68.5	116	122	127	119	151	111	114	115	121	122
68.75	116	123	128	119	151	111	114	115	121	122
69	119	123	128	120	152	111	115	116	121	123
69.25	116	123	128	120	152	111	115	116	122	123
69.5	119	123	129	120	153	111	115	116	122	123
69.75	118	124	129	121	153	112	116	116	122	123
70	121	124	130	121	153	112	116	116	122	124
70.25	120	124	130	121	154	112	116	117	122	124
70.5	117	123	130	121	154	112	116	116	123	124
70.75	115	124	131	122	154	111	117	116	123	124
71	117	124	131	122	154	112	116	117	123	124
71.25	119	124	131	122	155	112	117	117	123	124
71.5	117	124	131	122	155	113	117	117	123	124
71.75	120	124	132	122	155	113	117	117	123	125
72	119	125	132	123	155	113	117	117	123	125
72.25	123	125	132	123	156	113	117	117	123	125
72.5	119	125	133	123	156	113	117	117	124	125

Unexposed Temperatures											
Time (minutes)	TC 1	TC 2	TC 3	TC 4	TC 5	TC 6	TC 7	TC 8	TC 9	TC 10	Average
72.75	117	125	133	123	156	113	117	117	124	158	125
73	115	125	134	123	157	113	118	118	124	158	125
73.25	117	125	134	124	157	113	118	118	124	158	125
73.5	118	125	134	124	157	113	118	118	124	158	126
73.75	118	126	135	124	158	113	118	118	124	158	126
74	119	126	135	124	158	113	119	118	124	159	126
74.25	120	126	135	125	159	113	119	118	125	159	127
74.5	119	126	135	125	159	114	119	118	125	159	127
74.75	119	127	135	125	159	114	118	118	125	159	127
75	117	126	136	125	159	115	118	118	125	158	127
75.25	117	126	136	125	160	115	118	118	125	158	127
75.5	119	126	136	126	160	116	117	118	125	158	127
75.75	118	126	136	126	160	116	117	118	125	157	127
76	119	126	136	126	160	116	117	119	125	158	127
76.25	120	126	137	126	160	116	117	118	125	159	127
76.5	119	126	137	126	160	116	117	118	125	159	127
76.75	116	126	138	126	161	115	117	118	125	159	127
77	115	126	138	126	161	115	117	118	125	159	127
77.25	118	126	138	126	161	115	118	118	125	160	127
77.5	117	126	138	126	162	115	118	118	125	160	127
77.75	116	126	139	126	162	115	118	118	125	160	127
78	115	127	139	126	162	115	118	118	125	160	127
78.25	119	127	139	127	162	115	118	118	125	160	128
78.5	120	127	140	127	163	116	119	118	125	160	128
78.75	122	127	140	127	163	116	119	119	126	160	129
79	123	128	140	127	163	116	119	119	126	161	129
79.25	120	128	141	127	164	116	119	119	126	160	129
79.5	120	128	141	127	164	116	120	119	126	161	129
79.75	120	128	141	127	164	116	120	119	126	161	129
80	120	128	142	128	165	116	120	119	126	161	129
80.25	118	128	142	128	165	116	120	119	126	161	129
80.5	120	128	142	128	165	117	120	119	126	160	130
80.75	118	128	142	128	166	117	119	119	126	160	129
81	121	128	142	128	166	118	119	119	126	161	130
81.25	124	128	143	128	166	117	120	119	127	161	130
81.5	120	128	143	128	166	118	119	119	126	160	130
81.75	119	128	143	128	166	118	119	119	127	160	130
82	121	128	143	128	167	118	119	119	127	160	130
82.25	120	128	143	129	167	118	119	119	127	161	130
82.5	118	128	144	129	167	118	119	119	127	161	130
82.75	119	128	144	129	167	118	119	119	127	162	130
83	120	128	144	129	167	117	120	119	127	162	130
83.25	122	128	144	129	168	117	120	120	127	162	131
83.5	124	129	145	129	168	117	120	120	127	162	131
83.75	120	129	145	129	168	118	120	120	127	162	131
84	123	129	145	129	169	118	120	120	127	163	131
84.25	122	129	145	129	169	118	120	120	127	162	131
84.5	120	129	145	130	169	118	120	120	127	162	131
84.75	122	129	146	130	169	118	121	120	127	163	131
85	124	129	146	130	170	118	121	120	127	163	132
85.25	122	130	146	130	170	118	121	120	127	163	132
85.5	121	130	146	130	170	118	121	120	127	163	132
85.75	120	130	146	130	170	119	121	120	127	163	132
86	120	130	146	130	171	119	121	120	128	163	132
86.25	124	130	147	130	171	119	121	121	128	163	132
86.5	127	130	147	130	171	119	122	121	128	163	133
86.75	125	130	147	130	171	119	122	121	128	163	133
87	125	130	147	131	172	119	122	121	128	164	133
87.25	123	130	147	131	172	119	122	121	128	164	133
87.5	123	131	147	131	172	119	123	121	128	164	133

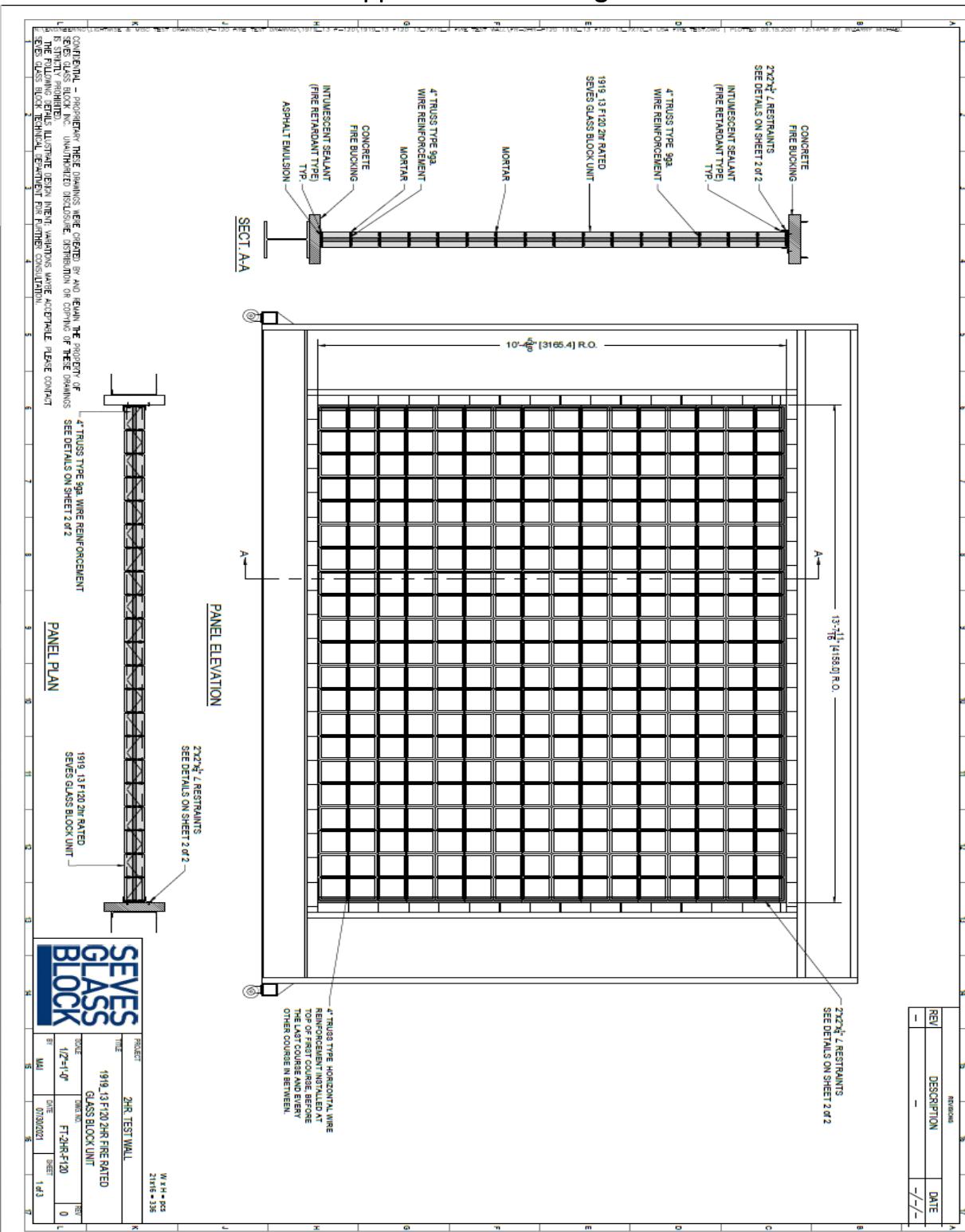
Unexposed Temperatures											
Time (minutes)	TC 1	TC 2	TC 3	TC 4	TC 5	TC 6	TC 7	TC 8	TC 9	TC 10	Average
87.75	123	131	148	131	173	119	123	121	128	164	133
88	125	131	148	131	173	119	123	121	128	164	133
88.25	125	131	148	131	173	119	123	121	128	164	133
88.5	126	131	149	131	173	119	124	122	128	164	134
88.75	125	131	149	132	174	119	124	122	128	164	134
89	127	131	149	132	174	119	124	122	128	164	134
89.25	125	132	149	132	174	119	124	122	129	164	134
89.5	124	132	150	132	175	120	123	122	129	164	134
89.75	125	132	151	132	175	120	124	122	129	165	134
90	125	132	151	132	175	120	124	122	129	165	134
90.25	127	132	151	132	175	120	124	123	129	165	135
90.5	125	132	151	133	176	120	124	123	129	165	135
90.75	125	132	151	133	176	121	124	123	129	165	135
91	125	132	152	133	176	121	124	123	129	165	135
91.25	122	131	152	133	176	121	124	123	129	165	135
91.5	127	131	152	133	176	121	124	123	129	165	135
91.75	128	132	152	133	176	121	124	123	129	165	135
92	130	132	152	133	176	120	124	123	129	166	135
92.25	130	132	152	133	177	120	125	123	129	166	136
92.5	129	132	152	133	177	120	125	123	129	166	136
92.75	129	132	153	133	177	120	125	123	129	166	136
93	129	132	153	134	177	120	126	123	129	166	136
93.25	126	132	153	134	178	120	125	123	129	166	136
93.5	128	132	153	134	178	121	126	123	130	167	136
93.75	129	133	153	134	178	121	126	123	130	167	136
94	129	133	154	134	178	121	125	123	130	167	136
94.25	128	133	154	134	179	121	125	123	130	167	136
94.5	129	133	154	134	179	121	125	123	130	167	136
94.75	131	133	154	134	179	121	126	123	130	167	137
95	129	133	154	134	179	121	126	123	130	168	137
95.25	131	133	155	135	179	121	126	123	130	168	137
95.5	130	133	155	135	180	121	126	123	130	168	137
95.75	131	133	155	135	180	121	126	123	130	169	137
96	129	133	155	135	180	121	126	123	130	170	137
96.25	130	133	155	135	180	122	126	124	130	170	137
96.5	129	133	155	135	181	122	125	124	130	170	137
96.75	131	133	155	135	181	122	125	124	130	170	137
97	130	133	155	135	181	122	125	124	130	171	137
97.25	130	133	155	135	181	122	125	123	130	171	137
97.5	128	133	156	135	181	122	125	123	130	171	137
97.75	130	133	156	135	181	122	125	123	130	172	137
98	131	133	156	135	181	122	125	123	130	172	138
98.25	131	133	156	135	181	122	126	124	130	173	138
98.5	133	133	156	135	182	123	126	124	131	174	138
98.75	130	133	156	136	182	123	126	124	131	173	138
99	130	133	156	136	182	123	126	124	131	174	138
99.25	132	133	156	136	182	123	127	124	131	174	138
99.5	136	133	157	136	182	123	127	125	131	174	139
99.75	134	133	157	136	182	124	127	125	131	174	139
100	135	133	157	136	183	123	128	125	131	175	139
100.25	134	134	157	136	183	123	128	125	131	175	139
100.5	136	134	157	136	183	123	128	125	131	176	139
100.75	136	134	158	136	183	123	129	125	131	176	139
101	138	134	158	137	184	123	129	125	131	176	140
101.25	138	134	158	137	184	123	129	126	131	176	140
101.5	139	134	158	137	184	124	130	126	131	177	140
101.75	141	134	158	137	184	124	130	126	131	177	141
102	141	134	158	137	184	125	131	127	132	176	141
102.25	142	135	159	138	184	125	131	127	132	176	141
102.5	142	134	159	138	185	125	132	127	132	175	142

Unexposed Temperatures										
Time (minutes)	TC 1	TC 2	TC 3	TC 4	TC 5	TC 6	TC 7	TC 8	TC 9	Average
102.75	141	135	159	138	185	125	132	127	132	142
103	144	135	159	138	185	125	132	127	132	142
103.25	143	135	159	138	186	125	133	128	132	142
103.5	144	135	159	139	186	126	133	128	132	142
103.75	142	135	160	139	186	126	133	128	133	142
104	143	135	160	139	186	125	133	128	133	142
104.25	143	135	160	139	186	126	133	128	133	142
104.5	146	135	160	139	186	126	133	128	133	143
104.75	148	135	160	139	187	126	133	128	133	143
105	148	135	160	139	187	125	133	128	133	143
105.25	151	135	161	139	187	125	134	128	133	144
105.5	152	135	161	139	187	126	134	128	133	144
105.75	153	135	161	140	187	126	134	129	133	144
106	153	135	161	140	187	126	135	129	133	144
106.25	155	136	162	140	187	126	135	129	133	145
106.5	157	136	162	140	187	126	136	130	133	145
106.75	157	136	162	140	188	127	136	130	134	146
107	159	136	162	141	188	127	137	131	134	146
107.25	162	136	162	141	188	127	137	131	134	146
107.5	164	137	162	141	188	126	137	131	134	147
107.75	166	137	162	141	188	127	138	131	134	147
108	168	137	163	142	189	127	138	132	134	148
108.25	168	138	163	142	188	127	138	132	135	148
108.5	168	138	163	142	189	127	139	132	135	148
108.75	168	138	163	142	189	127	139	132	135	148
109	168	138	163	142	189	127	139	132	135	148
109.25	168	139	164	143	189	127	140	133	135	148
109.5	167	139	164	143	189	127	140	133	135	149
109.75	165	139	164	143	189	128	140	133	135	149
110	167	139	164	143	189	128	141	133	135	149
110.25	166	139	164	143	189	128	141	133	136	149
110.5	162	140	164	143	190	128	141	134	136	149
110.75	159	140	164	143	190	128	142	134	136	148
111	157	141	164	144	190	128	142	134	136	148
111.25	157	141	165	144	190	128	142	134	136	148
111.5	153	142	165	144	190	128	142	134	136	148
111.75	159	142	165	144	190	127	142	134	136	149
112	168	142	165	144	190	127	142	134	136	150
112.25	174	142	165	144	190	128	142	135	136	151
112.5	177	142	165	144	190	128	142	135	136	151
112.75	178	143	166	144	190	128	142	135	136	151
113	101	143	166	144	190	128	142	135	136	143
113.25	82	144	166	144	190	128	142	135	136	141
113.5	75	144	166	144	190	128	142	135	136	140
113.75	71	144	166	144	190	128	143	135	136	140
114	69	144	167	144	190	128	143	136	136	140
114.25	68	145	167	144	190	128	143	136	136	140
114.5	67	145	167	144	190	129	143	137	136	140
114.75	66	145	167	145	190	128	143	137	136	140
115	66	146	167	145	190	128	144	137	136	140
115.25	65	146	168	145	190	129	144	138	137	140
115.5	65	147	168	145	190	130	144	138	137	140
115.75	65	146	168	145	190	129	145	138	137	140
116	65	146	168	145	190	129	146	138	137	140
116.25	65	146	168	145	190	129	146	138	137	140
116.5	64	147	168	144	190	128	146	138	137	140
116.75	64	147	168	144	190	128	146	138	137	140
117	64	147	169	144	190	129	147	138	137	140
117.25	64	148	168	145	190	129	147	138	137	141
117.5	65	148	168	145	190	129	146	138	137	141

Time (minutes)	Unexposed Temperatures										Average
	TC 1	TC 2	TC 3	TC 4	TC 5	TC 6	TC 7	TC 8	TC 9	TC 10	
117.75	65	149	168	145	190	129	146	139	137	179	141
118	65	149	168	145	190	129	146	139	137	181	141
118.25	65	150	168	145	190	129	146	139	137	182	141
118.5	65	150	168	145	190	129	146	140	136	181	141
118.75	65	150	169	145	190	129	146	140	136	181	141
119	65	151	169	145	190	130	146	140	136	182	141
119.25	65	151	169	145	190	130	146	140	136	182	141
119.5	65	151	170	145	190	130	146	141	136	182	141
119.75	65	151	169	145	190	130	146	141	136	183	142
120	65	152	170	145	190	130	146	141	137	182	142

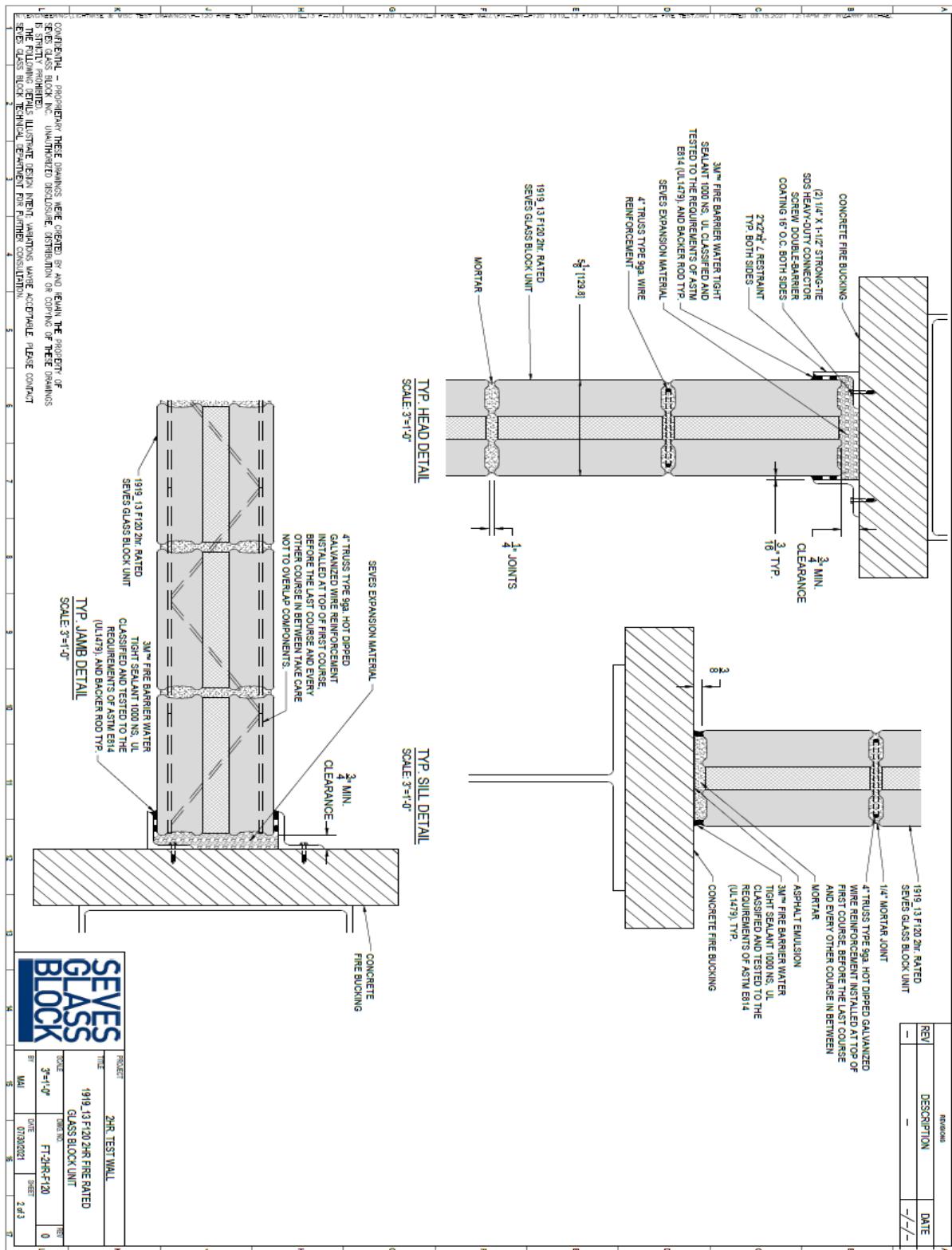
Note: TC 1 fell off wall assembly at 1:53:00

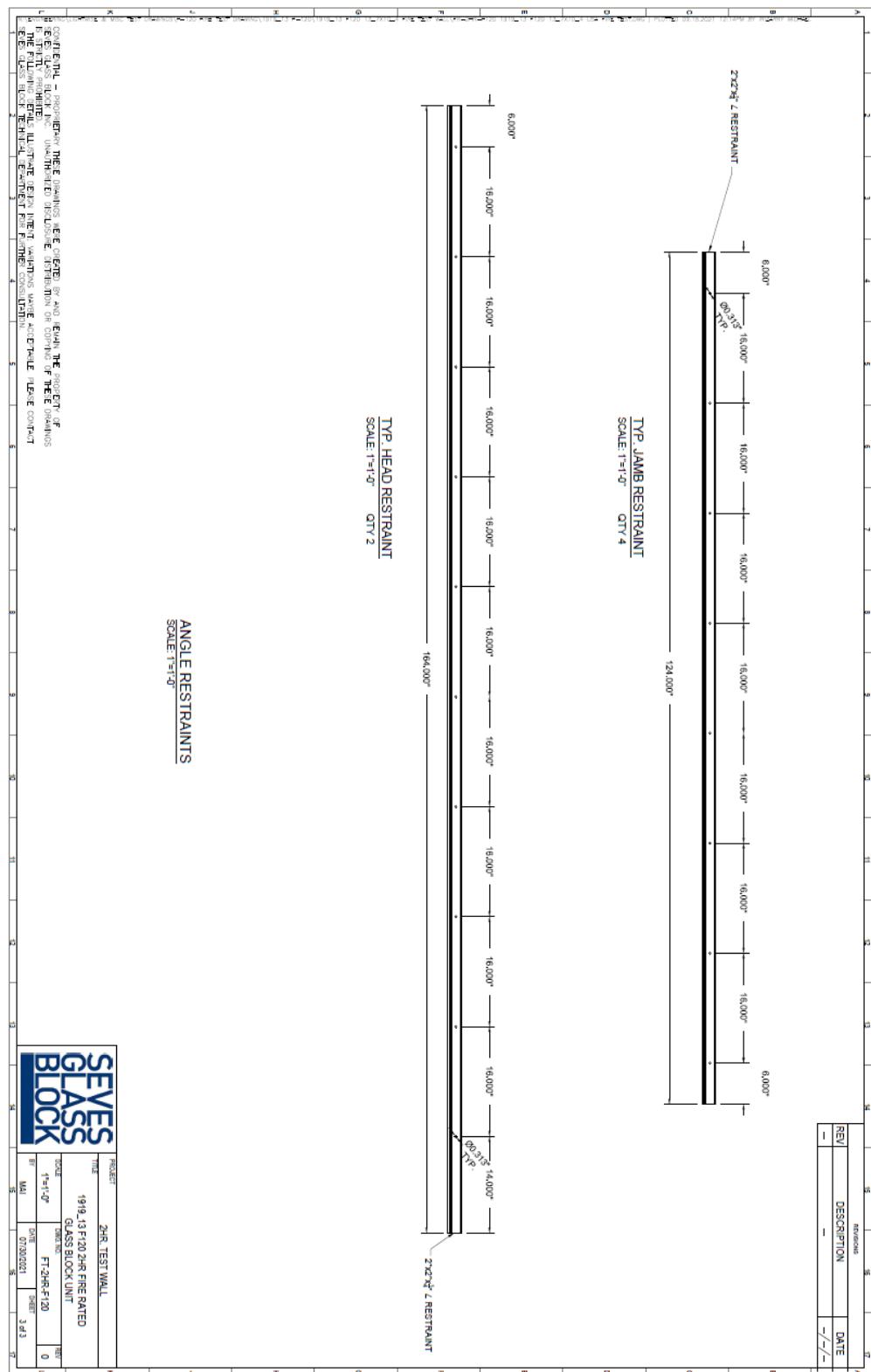
Appendix C – Drawings



Drawing No. 1

Wall assembly plan view – Provided by Seves Glass Block, Inc.





Drawing No. 3
Angle Restraints Detail – Provided by Seves Glass Block, Inc.

Appendix D - Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
0	05/23/2022	N/A	Original report issue