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ASTM E119
Fire Resistance Performance

TEST REPORT

Rendered to:

QUAIL SPRINGS

WALL ASSEMBLY:

Tri-Density Cob Wall

Report No.: QS050621-53
Test Date(s): 12/08/2021
Report Date: 01/11/2022
37 pages

QS050621-53
01/11/2022

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TEST REPORT

Rendered to:

QUAIL SPRINGS
35070 California 33
Maricopa, CA 93252

Report No.: QS050621-53
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1.0 General Information

1.1 Product

Tri-Density Cob Wall

1.2 Project Summary

ICC NTA, LLC was contracted by QUAIL SPRINGS to evaluate a wall assembly that includes earthen building practices within modern building codes to achieve sustainable and affordable living using earthen materials in accordance with ASTM E119. 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

Quail Springs constructed a wall assembly that uses earthen building materials such as monolithic adobe also known as cob. The wall consisted of a combination of clay, sand, and straw constructed using three densities of cob material, in nominal 40-in. tall x 120-in. wide horizontal bands stacked vertically.

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.

1.6 Witnessing

Representatives of Quail Springs were 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 E119-18c, Standard Test Methods for Fire Tests of Building Construction and Materials

3.0 Summary of Results

Fire Resistance Period: 120 minutes

Hose Stream Result: Pass

Loadbearing Assembly

4.0 Test Method

The wall assembly was evaluated in accordance with the following:

- ASTM E119-18c, Standard Test Methods for Fire Tests of Building Construction and Materials. ASTM International, West Conshohocken, PA.

4.1 General

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.

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.

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.

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.

Applied Load

If required, this test method may be used to expose a test specimen to fire and hose stream tests while maintaining a compressive load on the wall. The load bearing wall is constructed within the top and bottom masonry/steel constraints. This is achieved in this laboratory using a load-bearing frame which has a movable base section. Hydraulic actuators press upwards on the bottom beam applying the prescribed load to the test specimen.

For the testing reported herein, load was applied to the wall assembly using an intended live load of 11,000 psi requested by the client. The load applied can be expressed as follows:

Load Calculation	
Hydraulic Pressure Applied for each Actuator (psig)	411
No. of Actuators	3
Actuator Effective Area (sq. inches)	11.04
Applied Load by all Actuators (lbs.)	13,612
Dead Load – Estimated Weight of Walls (lbs.)	6,281
Dead Load – Weight of Load Beam & Blocks (lbs.)	2,606
Weight of Top Beam (lbs.)	207
Superimposed Load (lbs.)	4,725
Wall Length (feet)	10
Superimposed Load per Wall Length (plf)	473
Client Specified Superimposed Load per Wall Length (plf)	1,100

Eqn 1: Applied Load by all Actuators = $(411 \text{ psig}) \times (3 \text{ Actuators}) \times (11.04 \text{ sq. in.}) = 13,612 \text{ lbs.}$

Eqn. 2 = Superimposed Load (added to Wall) = $\text{Actuator Load} - (\text{Dead Load of Wall} + \text{Dead Load of Beam & Bricks} + \text{Weight of Top Beam}) + \text{Weight of Top Beam}$

Or

Superimposed Load = $13,612 \text{ lbs.} - (6,281 \text{ lbs.} + 2,606 \text{ lbs.} + 207 \text{ lbs.}) + 207 \text{ lbs.} = 4,725 \text{ lbs.}$

4.2 Test Specimens

All material for the wall assembly was provided by Quail Springs. A wall assembly was constructed by Quail Springs. ICC NTA, LLC personnel provided and constructed a steel frame to house the wall assembly during construction and drying of the material. The side pieces of the frame were removed from the wall prior to applying a load to the wall assembly.

Cob Material

The 10-ft. x 10-ft. wall assembly consisted of Red Silty Clay with Sand locally sourced from a fill material company. Straw was added to the clay at a predetermined ratio per the client. Water was added to the clay/straw material for workability and formed within the steel frame. The only asymmetry was that the unexposed face of the wall assembly was constructed to include a taper in the face. The bottom of the wall was nominally 12-in. thick and tapered off to nominally 8-in. thick at the top of the wall assembly, with tolerances of +/- ½-in. Three different recorded density measurements of the material starting at the bottom 40-in. was an average of 100 lbs./cu. Ft. The middle 40-in. section of the wall was approximately 72.8 lbs./cu. Ft. and the top 40-in. section was approximately 46.3 lbs./ cu. Ft. The material was allowed 6 months to dry before moving. Prior to the fire exposure, material was taken from the bottom of the wall assembly to assess the moisture content of the center of the wall. The measured moisture content was 0.7%.

Structural Wire Mesh

A structural wire mesh cage was constructed of 10-gauge, 6-in. x 6-in. steel reinforcing mesh. The cob material was placed in and around the wire mesh cage. The mesh cage matched the overall geometry of the wall assembly with one face having a taper. The wire mesh was used to provide rigidity to the cob material as the wall was being constructed. The mesh cage was imbedded within the cob material per the client's specifications.

4.3 Test Setup and Procedure

The wall assembly was setup and evaluated in accordance with ASTM E119-18c. The loadbearing wall assembly was placed in front of the vertical furnace with the tapered face away from the furnace at ICC NTA, Inc.'s Laboratory on 12/08/2021. 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 75°F, with a relative humidity of 55%.

Deviations from the standard(s) include: None

4.4 Test Results

At 2:53 PM, the burners were ignited, and the furnace temperature was controlled following the standard time-temperature curve for a period of 120 minutes.

TEST OBSERVATIONS

Pre-Test	Load applied – Initial difference between Deflection reference and center of wall: 3-1/2-in.
0:00	Burners Ignited, Test Started
5:00	No deflection to report
10:00	No deflection to report
15:00	No deflection
16:00	No changes to report on exposed face
20:00	No deflection
25:00	No change to exposed face
30:00	No deflection
31:00	No change to unexposed face or exposed face
40:00	Deflection: 1/4-in. in center of wall
41:00	No changes to exposed face or unexposed face
50:00	Deflection: 1/2-in. in center of wall, 1/4-in. at quarter points
1:00:00	Deflection: 3/4-in. in center of wall, 1/2-in. at quarter points
1:10:00	No change in deflection
1:15:00	No changes to the exposed face or the unexposed face
1:20:00	Deflection: 1-in. of deflection at center of wall, 3/4-in. at quarter points, 1/4-in. at each end
1:30:00	No change in deflection
1:40:00	No changes to the exposed or unexposed faces
1:40:00	No change in deflection

1:45:00	Deflection: Center of wall and quarter points at 1-in., $\frac{1}{2}$ -in. at each end
1:50:00	No changes to deflection
1:55:00	No changes to deflection, overall 1-in. at center of wall face
2:00:00	Burners extinguished, end of fire exposure period; No changes to report on unexposed face

Hose Stream Observations

2:05:00	Hose Stream test started
2:07:30	Hose stream test completed; No projection of hose stream through unexposed face; The wall assembly sustained the applied load throughout the hose stream test

*Tabular and graphical data can be found in Appendix B

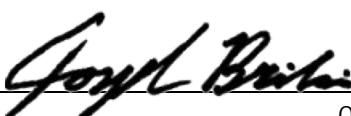
4.5 Summary and Conclusions

The loadbearing, asymmetrical wall assembly described in this report did meet the Conditions of Acceptance of ASTM E119 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 Tri-Density Cob Wall assembly with the flat face exposed to the furnace withstood the fire exposure of ASTM E119 for a period of **120 minutes**. The wall assembly did meet the Acceptance Criteria of ASTM E2226 when exposed to the hose stream test.

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

01/11/2022


Michael Luna
Sr. Director

01/11/2022

Appendix A - Photographs



Photo No. 1
Beginning stages of Tri-Density Cob wall construction



Photo No. 2
Construction progress of Tri-Density Cob wall



Photo No. 3
Construction Progress of Tri-Density Cob wall



Photo No. 4
Completed Construction of Tri-Density wall



Photo No. 5
Completed Test Set-up (Pre-Test)



Photo No. 6
Exposed face during test – (20:00 minutes into test)

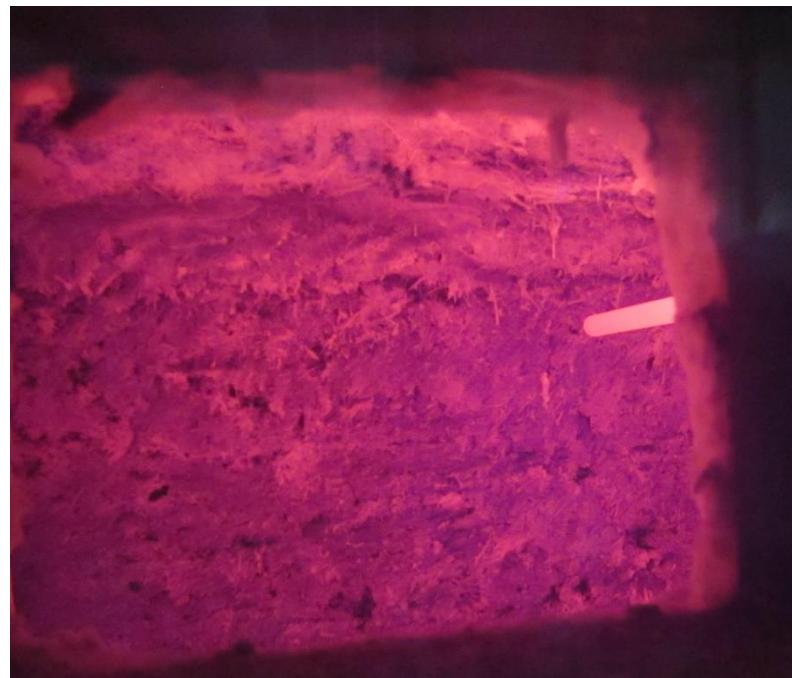


Photo No. 7
Exposed face – (25:00)



Photo No. 8
Exposed face – (40:00)



Photo No. 9
Exposed face of wall assembly – (1:20:00)



Photo No. 10
Exposed face – (Post-Fire Endurance Test)



Photo No. 11
Exposed face – (Post-Hose Stream)



Photo No. 12
Unexposed face – (Post-Hose Stream)

Appendix B - Data

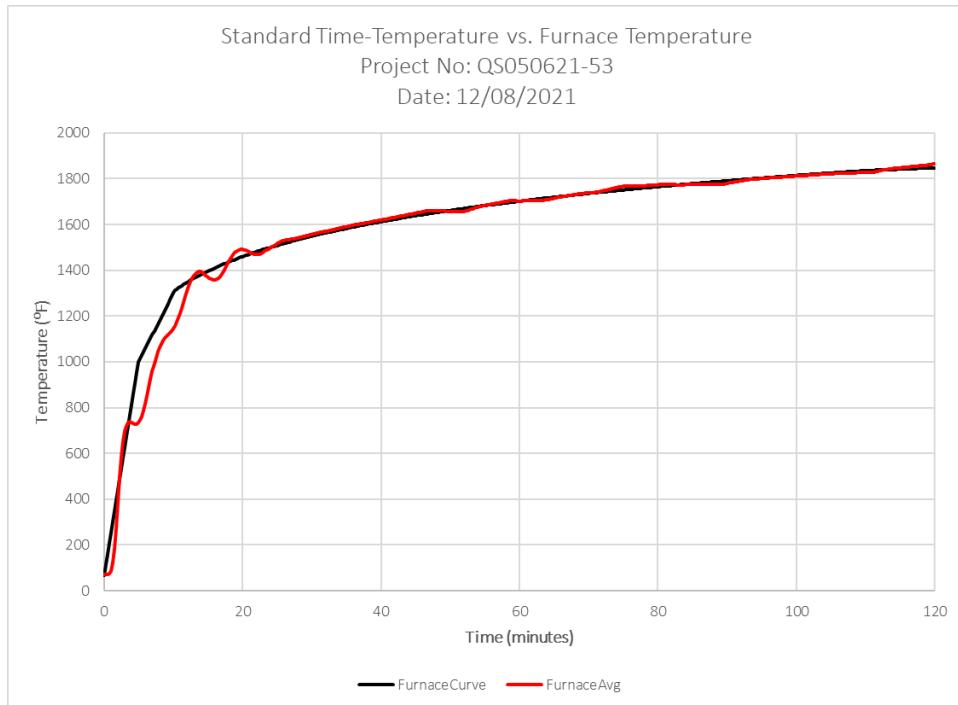


Figure No. 1

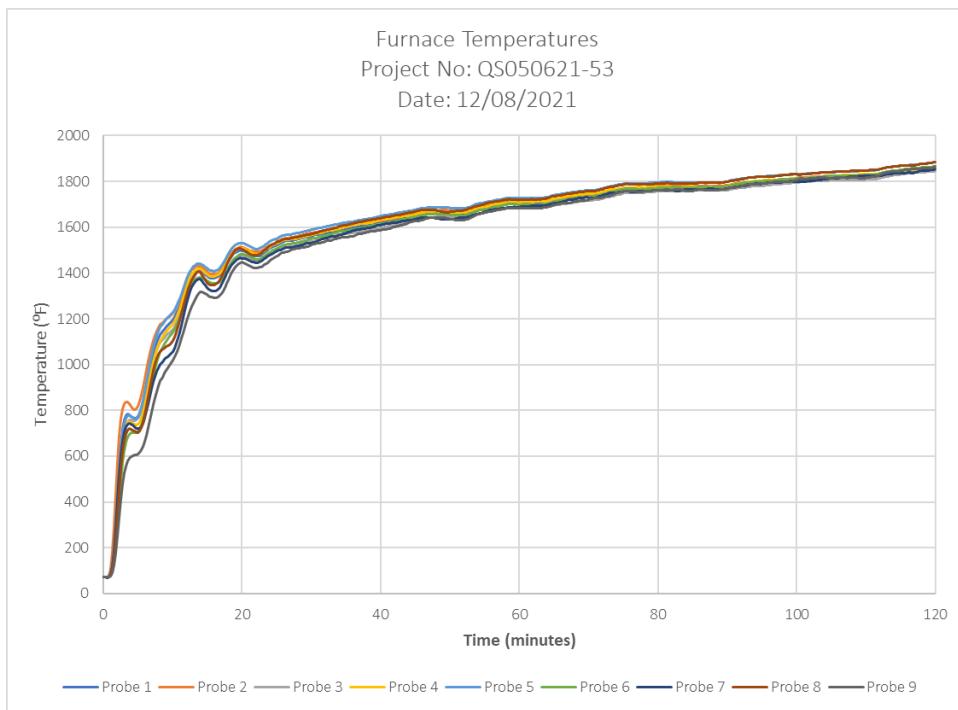


Figure No. 2

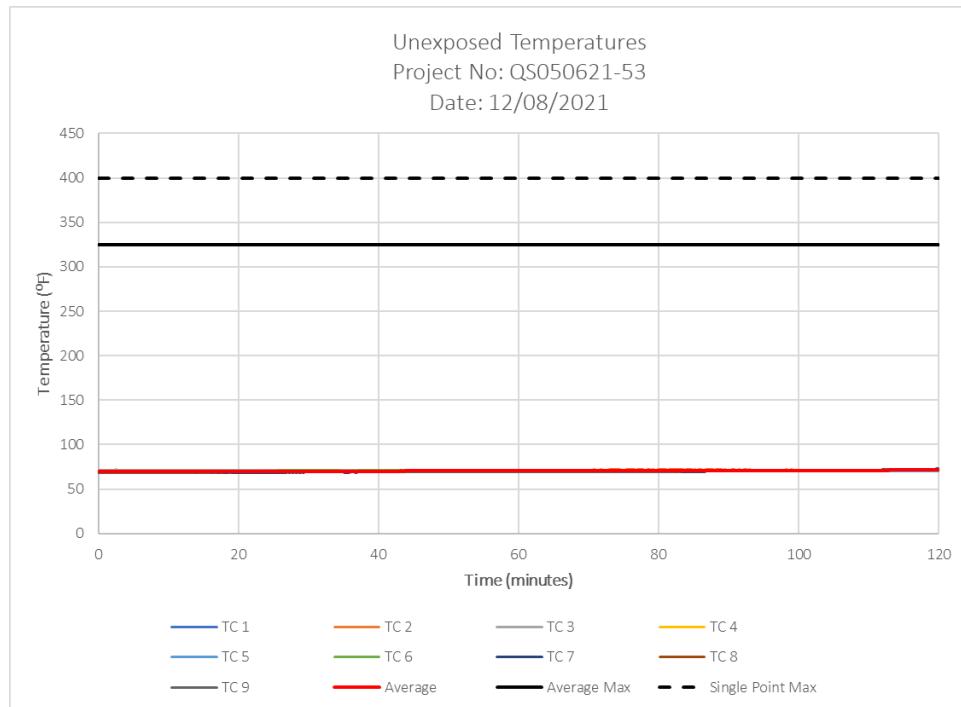


Figure No. 3

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	72	72	72	71	71	71	70	70	70
0.25	72	72	72	71	71	71	70	70	70
0.5	72	72	72	71	71	71	70	70	70
0.75	75	77	73	73	75	72	72	72	71
1	97	110	82	84	94	79	84	85	77
1.25	142	183	107	114	137	98	117	114	92
1.5	199	294	158	169	211	139	184	165	122
1.75	289	433	239	258	316	205	288	243	178
2	426	574	345	376	438	296	410	346	249
2.25	548	690	459	497	552	400	518	454	333
2.5	646	766	562	594	641	494	604	548	412
2.75	717	808	643	665	702	570	667	620	478
3	759	828	698	711	742	624	707	668	526
3.25	777	836	732	738	766	661	730	698	558
3.5	783	835	750	750	776	684	741	713	579
3.75	781	828	758	752	778	695	743	719	592
4	775	818	758	749	774	700	740	718	599
4.25	768	808	756	743	768	702	734	714	602
4.5	764	802	755	739	762	702	728	708	603
4.75	765	806	758	736	761	703	722	704	605
5	772	819	765	738	769	709	719	703	608
5.25	786	839	776	747	786	720	720	709	615
5.5	809	867	793	764	812	736	729	724	626
5.75	837	901	818	789	844	758	745	748	643
6	869	938	848	821	882	785	768	779	665
6.25	905	978	882	857	922	816	797	817	692
6.5	943	1015	917	896	963	850	830	858	723
6.75	981	1049	952	935	1003	885	864	899	757
7	1016	1079	985	974	1041	919	896	938	791
7.25	1047	1106	1015	1008	1074	952	925	973	824
7.5	1073	1128	1041	1039	1102	983	950	1003	855
7.75	1096	1147	1063	1066	1126	1010	970	1026	883
8	1115	1162	1081	1088	1147	1034	987	1044	907
8.25	1131	1174	1096	1106	1163	1055	1001	1057	928
8.5	1144	1184	1108	1121	1177	1073	1012	1066	946
8.75	1155	1192	1118	1133	1188	1089	1021	1073	961
9	1165	1199	1126	1143	1198	1102	1029	1078	975
9.25	1173	1205	1134	1152	1206	1114	1035	1082	987
9.5	1180	1211	1140	1159	1213	1124	1041	1086	998
9.75	1186	1215	1146	1167	1220	1132	1047	1092	1007
10	1195	1223	1154	1176	1229	1142	1057	1103	1019
10.25	1208	1235	1166	1190	1241	1154	1072	1120	1033
10.5	1223	1250	1182	1206	1256	1168	1093	1143	1050
10.75	1239	1266	1199	1224	1272	1184	1118	1168	1069
11	1255	1283	1217	1244	1288	1202	1143	1194	1091
11.25	1275	1304	1236	1266	1308	1222	1172	1222	1115
11.5	1298	1327	1259	1290	1329	1245	1205	1252	1140
11.75	1321	1350	1284	1315	1351	1269	1239	1280	1165
12	1341	1372	1307	1339	1373	1293	1270	1307	1190
12.25	1358	1389	1329	1360	1392	1314	1296	1331	1212
12.5	1372	1403	1347	1378	1407	1333	1320	1352	1234
12.75	1382	1413	1360	1391	1419	1348	1338	1369	1252
13	1391	1420	1368	1401	1428	1359	1352	1382	1269
13.25	1399	1425	1374	1409	1435	1368	1362	1393	1285
13.5	1405	1429	1378	1415	1440	1374	1369	1402	1299
13.75	1409	1431	1382	1419	1442	1379	1373	1407	1310
14	1409	1429	1382	1419	1442	1380	1372	1403	1316

Furnace Temperatures									
Time (minutes)	Probe 1	Probe 2	Probe 3	Probe 4	Probe 5	Probe 6	Probe 7	Probe 8	Probe 9
14.25	1405	1424	1379	1415	1438	1379	1365	1392	1316
14.5	1399	1419	1374	1408	1433	1376	1356	1380	1314
14.75	1393	1413	1368	1401	1427	1372	1345	1369	1310
15	1387	1406	1362	1394	1421	1367	1336	1359	1305
15.25	1382	1401	1357	1389	1415	1362	1328	1353	1300
15.5	1378	1397	1354	1385	1411	1359	1323	1349	1296
15.75	1376	1395	1352	1383	1409	1356	1320	1347	1294
16	1377	1394	1352	1384	1408	1355	1320	1347	1292
16.25	1379	1396	1354	1386	1410	1355	1322	1350	1293
16.5	1384	1401	1357	1391	1414	1358	1328	1358	1296
16.75	1392	1409	1365	1399	1422	1364	1338	1370	1302
17	1401	1419	1374	1408	1432	1372	1350	1384	1310
17.25	1412	1430	1385	1419	1444	1383	1365	1401	1323
17.5	1426	1443	1397	1432	1457	1396	1381	1418	1337
17.75	1439	1457	1410	1445	1471	1410	1398	1435	1353
18	1452	1469	1422	1458	1484	1424	1412	1452	1370
18.25	1464	1480	1433	1470	1496	1437	1424	1466	1387
18.5	1475	1489	1442	1481	1506	1449	1435	1479	1402
18.75	1484	1497	1450	1490	1515	1458	1445	1490	1415
19	1490	1503	1457	1497	1521	1466	1453	1498	1426
19.25	1494	1508	1462	1503	1526	1472	1460	1505	1434
19.5	1498	1512	1467	1507	1530	1478	1464	1508	1441
19.75	1499	1513	1469	1509	1532	1482	1465	1507	1446
20	1497	1513	1470	1509	1531	1483	1464	1504	1446
20.25	1496	1511	1470	1508	1528	1482	1464	1502	1445
20.5	1493	1509	1468	1505	1525	1479	1462	1497	1442
20.75	1489	1505	1466	1502	1521	1476	1460	1492	1438
21	1485	1501	1463	1498	1517	1472	1456	1486	1433
21.25	1481	1498	1460	1493	1513	1468	1452	1481	1428
21.5	1477	1495	1458	1488	1510	1465	1449	1478	1425
21.75	1474	1493	1456	1485	1507	1462	1447	1476	1423
22	1473	1491	1455	1483	1505	1460	1445	1476	1423
22.25	1474	1491	1455	1482	1505	1459	1445	1478	1423
22.5	1475	1492	1456	1483	1506	1461	1448	1481	1424
22.75	1478	1495	1458	1487	1510	1464	1452	1485	1427
23	1483	1499	1462	1492	1515	1469	1456	1492	1431
23.25	1489	1505	1467	1497	1520	1474	1462	1498	1435
23.5	1495	1510	1471	1502	1525	1479	1468	1505	1440
23.75	1501	1514	1475	1508	1531	1484	1473	1512	1446
24	1507	1518	1479	1513	1536	1489	1478	1517	1452
24.25	1512	1522	1482	1518	1540	1494	1482	1522	1457
24.5	1517	1527	1487	1522	1544	1499	1487	1527	1463
24.75	1520	1532	1492	1526	1547	1503	1491	1532	1468
25	1524	1536	1496	1530	1550	1508	1495	1536	1474
25.25	1527	1540	1500	1534	1554	1512	1499	1539	1479
25.5	1531	1544	1504	1538	1559	1516	1502	1543	1484
25.75	1535	1547	1507	1541	1563	1519	1505	1547	1487
26	1538	1549	1510	1544	1565	1522	1509	1549	1490
26.25	1540	1551	1512	1546	1567	1524	1510	1549	1492
26.5	1540	1552	1513	1547	1567	1525	1511	1549	1493
26.75	1540	1554	1514	1547	1568	1526	1510	1549	1497
27	1541	1555	1515	1547	1569	1528	1510	1551	1500
27.25	1542	1556	1516	1548	1570	1529	1512	1553	1502
27.5	1544	1558	1517	1549	1571	1530	1514	1555	1504
27.75	1546	1559	1519	1550	1573	1531	1516	1556	1506
28	1548	1561	1520	1551	1574	1532	1517	1558	1507
28.25	1549	1563	1522	1553	1575	1534	1519	1559	1509
28.5	1551	1565	1525	1555	1577	1537	1521	1560	1510
28.75	1553	1566	1528	1558	1579	1539	1523	1562	1512
29	1554	1569	1530	1560	1581	1541	1526	1564	1513

Furnace Temperatures									
Time (minutes)	Probe 1	Probe 2	Probe 3	Probe 4	Probe 5	Probe 6	Probe 7	Probe 8	Probe 9
29.25	1556	1571	1533	1561	1582	1543	1529	1566	1514
29.5	1557	1572	1534	1562	1584	1545	1530	1567	1517
29.75	1559	1573	1536	1564	1586	1547	1531	1568	1519
30	1561	1574	1537	1566	1588	1550	1532	1570	1523
30.25	1563	1576	1538	1568	1590	1551	1533	1572	1526
30.5	1566	1577	1540	1570	1592	1553	1535	1574	1527
30.75	1568	1578	1541	1572	1594	1554	1537	1576	1528
31	1569	1580	1544	1574	1596	1556	1541	1579	1529
31.25	1570	1581	1546	1575	1597	1558	1545	1581	1531
31.5	1571	1583	1547	1576	1598	1560	1548	1584	1533
31.75	1572	1584	1549	1578	1600	1561	1550	1586	1535
32	1574	1585	1550	1580	1602	1563	1551	1588	1538
32.25	1575	1587	1552	1582	1604	1564	1553	1589	1539
32.5	1577	1588	1554	1585	1606	1566	1556	1590	1540
32.75	1578	1589	1556	1586	1608	1569	1558	1592	1541
33	1579	1591	1558	1587	1609	1572	1559	1594	1545
33.25	1582	1592	1560	1589	1611	1574	1560	1596	1548
33.5	1584	1594	1562	1590	1612	1576	1561	1598	1550
33.75	1585	1596	1564	1592	1613	1579	1564	1601	1552
34	1587	1598	1566	1594	1615	1580	1566	1603	1553
34.25	1588	1600	1568	1596	1617	1581	1568	1605	1554
34.5	1590	1601	1569	1598	1618	1581	1570	1607	1555
34.75	1591	1602	1569	1600	1619	1582	1572	1609	1556
35	1593	1604	1571	1602	1620	1583	1574	1610	1557
35.25	1595	1605	1572	1604	1621	1585	1577	1611	1557
35.5	1596	1606	1573	1605	1622	1586	1580	1613	1558
35.75	1597	1607	1574	1607	1623	1588	1583	1615	1560
36	1599	1609	1576	1609	1625	1590	1586	1617	1561
36.25	1600	1610	1577	1610	1627	1591	1588	1618	1563
36.5	1601	1612	1578	1611	1628	1592	1589	1620	1566
36.75	1602	1613	1580	1613	1630	1593	1590	1621	1569
37	1603	1615	1581	1615	1631	1594	1591	1623	1570
37.25	1604	1616	1582	1616	1632	1595	1592	1624	1572
37.5	1606	1617	1583	1617	1634	1597	1593	1626	1574
37.75	1607	1618	1584	1617	1635	1599	1594	1628	1576
38	1608	1619	1586	1617	1636	1601	1595	1629	1578
38.25	1609	1620	1587	1618	1637	1603	1597	1630	1580
38.5	1611	1621	1589	1619	1638	1605	1598	1632	1582
38.75	1613	1622	1591	1621	1639	1607	1600	1633	1583
39	1614	1623	1592	1623	1641	1608	1602	1634	1583
39.25	1615	1625	1593	1625	1643	1609	1605	1636	1583
39.5	1617	1625	1594	1627	1645	1610	1607	1637	1584
39.75	1620	1626	1595	1630	1647	1612	1609	1638	1585
40	1622	1628	1596	1631	1649	1614	1609	1640	1587
40.25	1623	1630	1598	1633	1650	1615	1610	1641	1589
40.5	1623	1631	1599	1635	1651	1617	1613	1642	1589
40.75	1624	1633	1601	1636	1653	1619	1615	1644	1591
41	1625	1634	1603	1637	1654	1620	1616	1646	1593
41.25	1626	1636	1605	1638	1655	1621	1617	1647	1595
41.5	1627	1637	1607	1639	1657	1622	1618	1649	1597
41.75	1629	1638	1608	1641	1657	1623	1619	1651	1600
42	1631	1639	1609	1642	1659	1625	1620	1651	1602
42.25	1634	1641	1611	1644	1661	1627	1621	1652	1604
42.5	1635	1642	1612	1645	1662	1629	1623	1653	1606
42.75	1637	1644	1614	1646	1664	1631	1624	1653	1607
43	1638	1646	1616	1647	1666	1633	1626	1655	1609
43.25	1639	1649	1617	1648	1667	1635	1626	1657	1611
43.5	1640	1651	1619	1648	1668	1636	1627	1659	1613
43.75	1642	1652	1621	1649	1669	1637	1629	1661	1615
44	1643	1653	1623	1650	1671	1640	1631	1662	1618

Furnace Temperatures									
Time (minutes)	Probe 1	Probe 2	Probe 3	Probe 4	Probe 5	Probe 6	Probe 7	Probe 8	Probe 9
44.25	1645	1654	1625	1651	1672	1642	1631	1663	1622
44.5	1646	1656	1626	1652	1673	1643	1632	1665	1624
44.75	1647	1656	1627	1653	1674	1644	1633	1667	1626
45	1649	1657	1628	1656	1676	1645	1634	1669	1628
45.25	1650	1658	1629	1659	1678	1647	1636	1670	1628
45.5	1652	1659	1631	1661	1680	1648	1638	1672	1628
45.75	1653	1660	1633	1663	1682	1649	1641	1674	1629
46	1656	1662	1634	1665	1683	1650	1642	1675	1631
46.25	1659	1665	1636	1666	1684	1653	1642	1675	1634
46.5	1661	1667	1637	1666	1684	1654	1642	1676	1637
46.75	1662	1668	1639	1667	1685	1655	1642	1676	1639
47	1662	1670	1640	1667	1686	1656	1642	1676	1641
47.25	1663	1672	1642	1667	1686	1656	1641	1676	1642
47.5	1663	1673	1643	1668	1686	1657	1641	1677	1641
47.75	1662	1674	1644	1667	1687	1658	1641	1676	1641
48	1661	1674	1644	1665	1687	1659	1639	1674	1642
48.25	1661	1673	1644	1664	1686	1658	1638	1673	1642
48.5	1660	1673	1645	1663	1686	1657	1636	1671	1640
48.75	1659	1674	1645	1662	1685	1657	1635	1669	1641
49	1659	1674	1645	1662	1685	1657	1634	1667	1641
49.25	1659	1674	1646	1662	1686	1657	1634	1666	1640
49.5	1659	1674	1645	1662	1685	1656	1634	1666	1638
49.75	1658	1673	1645	1662	1685	1656	1634	1666	1637
50	1657	1672	1644	1662	1684	1654	1635	1666	1636
50.25	1656	1671	1643	1662	1683	1654	1636	1667	1634
50.5	1656	1670	1642	1661	1683	1653	1636	1668	1633
50.75	1656	1669	1641	1661	1682	1653	1637	1670	1632
51	1656	1668	1641	1662	1682	1652	1639	1671	1631
51.25	1657	1668	1641	1663	1682	1652	1641	1671	1631
51.5	1657	1667	1640	1664	1682	1651	1642	1672	1631
51.75	1657	1667	1640	1664	1682	1651	1642	1673	1631
52	1657	1667	1640	1664	1681	1651	1643	1674	1631
52.25	1659	1669	1641	1665	1683	1653	1643	1676	1633
52.5	1663	1671	1642	1667	1685	1656	1644	1678	1636
52.75	1666	1673	1644	1670	1688	1658	1646	1681	1639
53	1669	1676	1647	1673	1691	1661	1649	1684	1643
53.25	1672	1678	1650	1677	1694	1663	1651	1687	1646
53.5	1674	1681	1652	1679	1697	1666	1655	1689	1648
53.75	1676	1683	1655	1680	1700	1670	1656	1691	1652
54	1677	1686	1658	1682	1702	1673	1658	1693	1656
54.25	1679	1688	1659	1683	1704	1675	1660	1695	1658
54.5	1680	1690	1661	1685	1705	1676	1662	1697	1660
54.75	1681	1691	1662	1686	1707	1677	1665	1699	1662
55	1682	1692	1663	1687	1708	1678	1667	1702	1664
55.25	1683	1693	1665	1689	1709	1679	1669	1704	1665
55.5	1684	1695	1666	1691	1711	1681	1671	1705	1667
55.75	1686	1696	1668	1694	1712	1682	1674	1707	1667
56	1689	1697	1669	1696	1714	1684	1676	1708	1668
56.25	1691	1698	1671	1698	1716	1686	1677	1710	1670
56.5	1691	1699	1672	1699	1717	1689	1678	1711	1673
56.75	1693	1701	1674	1700	1718	1690	1678	1712	1674
57	1694	1702	1676	1701	1720	1692	1680	1714	1675
57.25	1695	1704	1677	1702	1721	1693	1681	1716	1677
57.5	1696	1706	1679	1704	1723	1695	1682	1717	1679
57.75	1698	1708	1681	1705	1724	1697	1683	1718	1680
58	1699	1710	1683	1706	1726	1699	1684	1720	1681
58.25	1700	1711	1685	1707	1727	1700	1685	1721	1683
58.5	1700	1713	1686	1708	1729	1700	1687	1722	1684
58.75	1700	1713	1687	1709	1729	1701	1688	1722	1684
59	1701	1713	1687	1708	1729	1701	1688	1721	1684

Furnace Temperatures									
Time (minutes)	Probe 1	Probe 2	Probe 3	Probe 4	Probe 5	Probe 6	Probe 7	Probe 8	Probe 9
59.25	1701	1712	1686	1708	1728	1700	1689	1720	1684
59.5	1700	1712	1686	1708	1728	1700	1688	1719	1684
59.75	1700	1712	1685	1707	1728	1699	1688	1719	1685
60	1701	1711	1685	1707	1728	1699	1688	1719	1684
60.25	1701	1710	1684	1707	1728	1699	1689	1719	1684
60.5	1702	1710	1684	1708	1728	1700	1689	1720	1684
60.75	1702	1711	1685	1708	1728	1700	1689	1720	1684
61	1702	1712	1685	1708	1728	1700	1689	1721	1684
61.25	1701	1713	1687	1709	1728	1700	1690	1721	1684
61.5	1701	1713	1687	1709	1728	1700	1691	1722	1684
61.75	1700	1713	1688	1710	1728	1699	1693	1722	1684
62	1701	1714	1688	1711	1728	1699	1693	1722	1684
62.25	1701	1714	1688	1711	1728	1698	1693	1722	1684
62.5	1701	1714	1688	1712	1729	1698	1693	1722	1684
62.75	1702	1714	1689	1712	1729	1698	1693	1722	1684
63	1703	1714	1689	1712	1729	1699	1694	1722	1684
63.25	1704	1714	1688	1713	1729	1699	1695	1723	1684
63.5	1704	1714	1689	1712	1729	1700	1695	1724	1685
63.75	1705	1714	1689	1713	1730	1701	1696	1724	1686
64	1706	1715	1690	1714	1731	1702	1697	1726	1687
64.25	1708	1717	1692	1716	1733	1704	1698	1728	1689
64.5	1710	1718	1693	1718	1735	1706	1700	1731	1691
64.75	1712	1720	1694	1720	1737	1709	1702	1733	1694
65	1713	1721	1695	1722	1739	1712	1703	1734	1697
65.25	1714	1721	1697	1724	1741	1714	1705	1736	1699
65.5	1715	1723	1698	1726	1742	1716	1707	1737	1701
65.75	1717	1724	1699	1727	1744	1717	1708	1739	1702
66	1718	1724	1700	1729	1745	1718	1710	1740	1704
66.25	1718	1725	1701	1730	1746	1719	1712	1741	1705
66.5	1719	1726	1701	1732	1747	1720	1714	1743	1705
66.75	1720	1726	1702	1733	1749	1721	1716	1744	1704
67	1721	1728	1703	1735	1750	1721	1719	1746	1704
67.25	1723	1729	1705	1737	1751	1723	1720	1747	1706
67.5	1725	1730	1706	1738	1752	1725	1720	1748	1708
67.75	1726	1732	1707	1739	1754	1726	1721	1749	1710
68	1726	1733	1709	1739	1755	1728	1723	1751	1712
68.25	1728	1734	1711	1740	1755	1729	1724	1752	1713
68.5	1730	1736	1712	1741	1756	1730	1727	1753	1714
68.75	1731	1736	1713	1742	1758	1731	1728	1753	1715
69	1733	1737	1714	1743	1758	1732	1728	1754	1717
69.25	1734	1738	1714	1744	1759	1732	1729	1755	1717
69.5	1735	1739	1715	1745	1760	1733	1730	1756	1717
69.75	1735	1739	1716	1746	1760	1733	1730	1757	1717
70	1734	1740	1716	1745	1760	1734	1729	1756	1719
70.25	1734	1741	1717	1745	1761	1735	1728	1757	1723
70.5	1734	1742	1718	1745	1762	1735	1727	1758	1725
70.75	1734	1743	1719	1745	1762	1737	1727	1758	1727
71	1735	1744	1720	1746	1763	1737	1729	1759	1728
71.25	1736	1744	1721	1747	1764	1738	1732	1761	1728
71.5	1737	1746	1722	1748	1765	1739	1734	1762	1728
71.75	1739	1747	1723	1751	1767	1741	1736	1764	1729
72	1742	1749	1725	1754	1769	1743	1739	1766	1730
72.25	1743	1752	1727	1756	1771	1745	1741	1768	1731
72.5	1745	1754	1729	1758	1773	1748	1744	1770	1733
72.75	1747	1757	1731	1761	1775	1750	1747	1772	1734
73	1748	1758	1733	1763	1777	1752	1749	1774	1735
73.25	1749	1760	1735	1765	1779	1753	1750	1776	1738
73.5	1751	1761	1736	1766	1782	1756	1750	1777	1741
73.75	1753	1763	1739	1766	1783	1758	1750	1779	1746
74	1754	1764	1741	1766	1785	1760	1751	1781	1749

Furnace Temperatures									
Time (minutes)	Probe 1	Probe 2	Probe 3	Probe 4	Probe 5	Probe 6	Probe 7	Probe 8	Probe 9
74.25	1755	1765	1742	1767	1786	1762	1752	1782	1751
74.5	1757	1767	1744	1768	1788	1764	1753	1783	1754
74.75	1759	1769	1746	1769	1789	1765	1754	1785	1755
75	1760	1771	1748	1770	1790	1766	1756	1787	1757
75.25	1761	1772	1750	1772	1791	1767	1757	1789	1758
75.5	1761	1773	1751	1772	1791	1768	1757	1789	1758
75.75	1761	1773	1751	1772	1791	1767	1757	1789	1758
76	1761	1772	1750	1772	1790	1767	1755	1788	1758
76.25	1762	1771	1750	1772	1791	1768	1754	1787	1758
76.5	1762	1771	1750	1773	1791	1768	1753	1787	1757
76.75	1763	1771	1749	1774	1791	1767	1754	1787	1755
77	1763	1771	1749	1775	1791	1766	1756	1787	1754
77.25	1763	1772	1749	1775	1791	1765	1756	1788	1753
77.5	1764	1772	1750	1774	1792	1766	1756	1788	1754
77.75	1763	1773	1750	1773	1791	1767	1757	1788	1755
78	1763	1774	1751	1773	1791	1766	1757	1788	1756
78.25	1764	1774	1752	1774	1791	1767	1757	1788	1756
78.5	1765	1775	1752	1775	1792	1767	1758	1788	1756
78.75	1767	1776	1753	1777	1793	1768	1759	1788	1757
79	1768	1777	1754	1777	1794	1769	1759	1788	1758
79.25	1769	1778	1755	1777	1794	1769	1760	1788	1759
79.5	1768	1779	1755	1777	1795	1770	1760	1789	1760
79.75	1768	1779	1756	1776	1795	1770	1761	1790	1761
80	1768	1779	1756	1776	1796	1771	1761	1791	1761
80.25	1769	1780	1757	1777	1796	1772	1761	1791	1762
80.5	1769	1781	1757	1776	1797	1772	1761	1791	1762
80.75	1769	1782	1758	1777	1797	1772	1762	1792	1763
81	1769	1782	1759	1777	1797	1773	1763	1793	1763
81.25	1770	1782	1759	1778	1797	1773	1763	1793	1764
81.5	1770	1782	1758	1778	1797	1773	1763	1793	1763
81.75	1769	1781	1758	1777	1797	1774	1763	1793	1762
82	1768	1781	1759	1775	1797	1774	1762	1792	1763
82.25	1767	1780	1759	1774	1796	1775	1760	1791	1765
82.5	1767	1780	1759	1773	1796	1775	1758	1791	1765
82.75	1767	1779	1758	1773	1795	1774	1757	1790	1765
83	1767	1779	1758	1773	1794	1772	1758	1790	1764
83.25	1766	1779	1758	1774	1794	1771	1759	1790	1763
83.5	1766	1779	1758	1775	1794	1771	1761	1790	1763
83.75	1766	1779	1758	1777	1794	1771	1763	1791	1761
84	1767	1780	1758	1778	1795	1771	1764	1791	1759
84.25	1767	1780	1758	1778	1794	1771	1765	1792	1758
84.5	1768	1781	1758	1778	1795	1771	1765	1792	1758
84.75	1768	1781	1759	1778	1796	1772	1765	1792	1759
85	1767	1781	1759	1778	1796	1772	1765	1793	1759
85.25	1767	1782	1760	1777	1796	1773	1764	1792	1760
85.5	1766	1782	1761	1776	1796	1774	1763	1792	1763
85.75	1767	1782	1761	1775	1796	1774	1763	1793	1763
86	1766	1782	1761	1774	1795	1774	1764	1793	1764
86.25	1766	1781	1761	1774	1795	1775	1765	1793	1764
86.5	1767	1781	1761	1775	1795	1775	1765	1793	1763
86.75	1767	1782	1761	1776	1795	1775	1765	1793	1762
87	1767	1782	1761	1776	1795	1775	1765	1794	1762
87.25	1767	1781	1761	1777	1796	1775	1767	1794	1761
87.5	1767	1781	1760	1777	1796	1774	1767	1794	1760
87.75	1767	1781	1760	1777	1796	1774	1767	1795	1761
88	1766	1781	1760	1777	1796	1774	1767	1795	1760
88.25	1765	1781	1760	1776	1796	1775	1766	1794	1760
88.5	1766	1781	1761	1775	1795	1775	1765	1794	1761
88.75	1766	1782	1761	1775	1795	1775	1764	1793	1763
89	1765	1782	1761	1774	1794	1776	1764	1793	1764

Furnace Temperatures									
Time (minutes)	Probe 1	Probe 2	Probe 3	Probe 4	Probe 5	Probe 6	Probe 7	Probe 8	Probe 9
89.25	1765	1781	1761	1774	1794	1776	1765	1794	1764
89.5	1766	1781	1761	1775	1796	1776	1766	1795	1765
89.75	1769	1782	1762	1776	1797	1778	1768	1797	1766
90	1772	1783	1763	1779	1800	1779	1769	1799	1769
90.25	1775	1785	1764	1782	1802	1781	1771	1801	1771
90.5	1776	1787	1766	1784	1804	1783	1772	1802	1772
90.75	1777	1788	1767	1786	1805	1784	1773	1804	1773
91	1779	1790	1769	1788	1806	1785	1774	1804	1773
91.25	1780	1792	1770	1789	1808	1787	1775	1806	1774
91.5	1780	1793	1771	1790	1809	1788	1777	1807	1776
91.75	1782	1794	1772	1792	1811	1790	1778	1809	1777
92	1784	1794	1773	1794	1812	1791	1778	1810	1778
92.25	1785	1795	1773	1794	1813	1793	1779	1811	1781
92.5	1787	1795	1774	1796	1814	1794	1779	1812	1784
92.75	1789	1795	1775	1797	1815	1794	1782	1815	1786
93	1790	1797	1776	1798	1816	1795	1785	1816	1786
93.25	1789	1797	1777	1799	1817	1796	1788	1817	1787
93.5	1789	1798	1778	1799	1818	1797	1789	1818	1787
93.75	1789	1800	1779	1799	1819	1798	1789	1818	1787
94	1790	1800	1780	1801	1819	1798	1789	1819	1787
94.25	1790	1801	1780	1801	1820	1799	1790	1820	1788
94.5	1791	1802	1780	1801	1820	1800	1790	1820	1791
94.75	1792	1802	1781	1801	1820	1800	1789	1819	1792
95	1793	1802	1782	1803	1821	1800	1789	1820	1792
95.25	1794	1802	1782	1805	1822	1800	1791	1820	1792
95.5	1794	1803	1782	1806	1822	1801	1792	1821	1792
95.75	1795	1804	1782	1807	1824	1801	1794	1821	1792
96	1795	1805	1783	1808	1825	1802	1794	1821	1793
96.25	1795	1806	1785	1807	1825	1803	1794	1821	1795
96.5	1796	1806	1785	1807	1825	1803	1794	1822	1796
96.75	1796	1806	1786	1807	1825	1804	1794	1822	1797
97	1796	1807	1787	1807	1826	1805	1794	1823	1798
97.25	1797	1807	1787	1807	1826	1806	1794	1825	1798
97.5	1798	1808	1788	1808	1827	1807	1795	1825	1799
97.75	1799	1808	1788	1808	1828	1808	1796	1826	1800
98	1799	1809	1790	1809	1828	1808	1797	1827	1800
98.25	1799	1810	1790	1809	1828	1808	1799	1828	1799
98.5	1799	1811	1791	1810	1829	1809	1800	1829	1799
98.75	1799	1811	1792	1811	1828	1809	1800	1829	1800
99	1799	1811	1792	1812	1829	1809	1801	1830	1800
99.25	1800	1811	1793	1812	1830	1810	1801	1830	1801
99.5	1801	1812	1793	1812	1831	1811	1800	1831	1803
99.75	1801	1813	1794	1813	1831	1812	1800	1831	1804
100	1802	1814	1795	1814	1832	1813	1800	1830	1807
100.25	1803	1815	1796	1814	1832	1814	1798	1829	1810
100.5	1803	1815	1797	1813	1832	1814	1797	1830	1812
100.75	1803	1816	1797	1813	1832	1814	1797	1831	1812
101	1804	1816	1797	1814	1832	1814	1798	1831	1811
101.25	1805	1817	1797	1815	1833	1815	1800	1832	1810
101.5	1805	1818	1798	1815	1834	1815	1801	1833	1811
101.75	1805	1818	1799	1814	1835	1816	1801	1833	1812
102	1805	1818	1800	1815	1835	1816	1802	1834	1813
102.25	1805	1819	1800	1816	1835	1817	1802	1834	1814
102.5	1806	1819	1801	1817	1835	1817	1804	1835	1814
102.75	1806	1820	1801	1817	1836	1817	1805	1835	1815
103	1805	1821	1802	1817	1837	1817	1806	1837	1816
103.25	1805	1821	1802	1817	1838	1818	1807	1837	1816
103.5	1805	1821	1803	1818	1838	1819	1807	1838	1816
103.75	1806	1822	1803	1818	1839	1820	1808	1838	1815
104	1806	1823	1803	1818	1839	1821	1808	1838	1816

Furnace Temperatures									
Time (minutes)	Probe 1	Probe 2	Probe 3	Probe 4	Probe 5	Probe 6	Probe 7	Probe 8	Probe 9
104.25	1807	1823	1803	1818	1839	1822	1809	1838	1816
104.5	1807	1824	1804	1819	1839	1822	1811	1839	1815
104.75	1809	1824	1805	1821	1840	1823	1812	1839	1814
105	1810	1824	1805	1822	1841	1823	1812	1840	1815
105.25	1811	1824	1806	1823	1842	1823	1812	1840	1815
105.5	1812	1824	1806	1823	1842	1823	1812	1841	1816
105.75	1812	1824	1806	1823	1842	1823	1813	1842	1816
106	1812	1824	1805	1824	1842	1823	1814	1842	1817
106.25	1812	1825	1805	1826	1843	1823	1815	1843	1817
106.5	1813	1825	1806	1827	1843	1824	1816	1843	1817
106.75	1812	1826	1806	1826	1843	1824	1817	1843	1816
107	1812	1826	1806	1827	1844	1824	1817	1843	1815
107.25	1812	1826	1806	1827	1844	1824	1818	1843	1815
107.5	1813	1826	1805	1827	1844	1825	1819	1844	1815
107.75	1814	1826	1805	1828	1844	1825	1819	1845	1816
108	1815	1827	1806	1828	1844	1825	1820	1846	1817
108.25	1815	1827	1806	1829	1844	1824	1820	1846	1817
108.5	1815	1827	1805	1829	1845	1824	1821	1846	1816
108.75	1816	1827	1805	1830	1845	1824	1822	1846	1816
109	1816	1828	1806	1831	1845	1824	1824	1847	1815
109.25	1817	1827	1806	1832	1845	1825	1824	1847	1814
109.5	1816	1827	1807	1832	1846	1825	1824	1847	1814
109.75	1816	1828	1807	1833	1847	1826	1824	1847	1814
110	1817	1828	1808	1833	1848	1827	1825	1848	1815
110.25	1817	1828	1808	1833	1848	1827	1825	1848	1817
110.5	1816	1828	1809	1833	1848	1828	1826	1849	1818
110.75	1816	1828	1809	1833	1848	1828	1826	1849	1820
111	1815	1828	1809	1833	1848	1828	1825	1849	1821
111.25	1816	1829	1809	1832	1848	1829	1824	1850	1822
111.5	1817	1831	1811	1833	1850	1831	1824	1851	1824
111.75	1819	1833	1813	1834	1852	1833	1824	1852	1826
112	1820	1835	1815	1835	1853	1834	1825	1854	1828
112.25	1822	1837	1816	1836	1855	1836	1826	1856	1832
112.5	1823	1839	1818	1838	1858	1838	1828	1858	1834
112.75	1825	1840	1820	1840	1860	1840	1830	1859	1836
113	1827	1841	1821	1841	1861	1842	1831	1860	1839
113.25	1829	1842	1822	1843	1862	1843	1832	1862	1840
113.5	1830	1843	1824	1844	1863	1844	1832	1863	1842
113.75	1831	1844	1825	1845	1864	1845	1833	1863	1842
114	1832	1845	1827	1846	1865	1847	1834	1864	1842
114.25	1833	1846	1828	1846	1865	1848	1835	1865	1843
114.5	1834	1847	1829	1846	1866	1848	1836	1867	1844
114.75	1834	1848	1829	1847	1867	1849	1837	1868	1845
115	1834	1849	1830	1847	1868	1850	1837	1868	1847
115.25	1835	1851	1832	1847	1868	1852	1836	1868	1849
115.5	1835	1851	1833	1847	1869	1853	1836	1868	1849
115.75	1837	1852	1834	1848	1870	1854	1837	1869	1850
116	1839	1852	1835	1849	1871	1855	1838	1869	1850
116.25	1839	1853	1835	1849	1871	1856	1838	1870	1851
116.5	1840	1854	1836	1849	1872	1857	1837	1869	1853
116.75	1840	1855	1837	1849	1873	1858	1837	1870	1855
117	1839	1855	1838	1851	1873	1859	1838	1871	1856
117.25	1839	1856	1838	1852	1874	1859	1841	1873	1855
117.5	1840	1857	1838	1853	1874	1858	1844	1874	1855
117.75	1842	1858	1838	1855	1875	1859	1845	1875	1855
118	1844	1859	1838	1855	1876	1860	1845	1876	1856
118.25	1845	1859	1839	1856	1877	1861	1845	1876	1858
118.5	1847	1860	1840	1857	1878	1861	1846	1877	1859
118.75	1847	1860	1841	1859	1879	1862	1847	1878	1858
119	1848	1861	1842	1860	1880	1862	1848	1879	1859

Furnace Temperatures									
Time (minutes)	Probe 1	Probe 2	Probe 3	Probe 4	Probe 5	Probe 6	Probe 7	Probe 8	Probe 9
119.25	1848	1861	1842	1861	1881	1863	1849	1881	1859
119.5	1849	1862	1843	1862	1882	1864	1851	1882	1860
119.75	1851	1863	1844	1864	1883	1865	1852	1883	1861
120	1852	1865	1846	1865	1884	1866	1853	1884	1864

Unexposed Temperatures										Average
Time (minutes)	TC 1	TC 2	TC 3	TC 4	TC 5	TC 6	TC 7	TC 8	TC 9	Average
0	71	71	71	70	69	70	68	69	69	70
0.25	71	71	71	70	69	71	68	69	69	70
0.5	71	71	71	70	69	70	68	69	69	70
0.75	71	72	71	70	69	71	68	69	69	70
1	71	72	71	70	69	71	68	69	69	70
1.25	71	71	71	70	69	71	68	69	69	70
1.5	71	72	71	70	69	70	68	69	69	70
1.75	71	71	71	70	69	71	68	69	69	70
2	71	71	71	70	69	71	68	69	69	70
2.25	71	71	71	70	69	70	68	69	69	70
2.5	71	71	72	70	69	71	68	69	68	70
2.75	71	71	71	70	69	71	68	69	69	70
3	71	71	71	70	69	71	68	68	69	70
3.25	71	71	71	70	69	70	68	68	69	70
3.5	71	71	71	70	69	71	68	68	69	70
3.75	71	71	71	70	69	70	68	68	69	70
4	71	71	71	70	69	70	68	68	69	70
4.25	71	71	71	70	69	71	68	68	69	70
4.5	71	71	71	70	69	70	68	68	69	70
4.75	71	71	71	70	69	70	68	68	69	70
5	71	71	71	70	69	71	68	68	69	70
5.25	71	71	71	70	69	71	68	68	69	70
5.5	71	71	71	70	69	71	68	68	69	70
5.75	71	71	71	70	69	71	68	68	69	70
6	71	71	71	70	69	71	68	68	69	70
6.25	71	71	71	70	69	71	68	68	69	70
6.5	71	71	71	70	70	71	68	68	69	70
6.75	71	71	71	70	69	71	68	68	69	70
7	71	71	71	70	69	71	68	68	69	70
7.25	71	71	71	70	69	71	68	68	69	70
7.5	71	71	71	70	69	71	68	68	69	70
7.75	71	71	71	70	69	71	68	68	69	70
8	71	71	71	70	69	71	68	68	69	70
8.25	71	71	71	70	69	71	68	68	69	70
8.5	71	71	71	70	69	71	68	68	69	70
8.75	71	71	71	70	69	70	68	68	69	70
9	71	71	71	70	69	71	69	68	69	70
9.25	71	71	71	70	69	71	68	68	69	70
9.5	71	71	71	70	70	71	69	68	69	70
9.75	71	71	71	70	69	71	69	68	69	70
10	71	71	71	70	69	71	69	69	69	70
10.25	71	71	71	70	69	71	69	69	69	70
10.5	71	71	71	70	70	71	68	69	69	70
10.75	71	71	71	70	69	71	68	69	69	70
11	71	71	71	70	69	71	69	69	69	70
11.25	71	71	71	70	70	71	68	69	69	70
11.5	71	71	71	70	70	71	69	69	69	70
11.75	71	71	71	70	70	71	69	69	69	70
12	71	71	71	70	70	71	69	69	69	70
12.25	71	71	71	70	69	71	69	69	69	70
12.5	71	71	71	70	69	71	69	69	69	70

Time (minutes)	Unexposed Temperatures									
	TC 1	TC 2	TC 3	TC 4	TC 5	TC 6	TC 7	TC 8	TC 9	Average
12.75	71	71	71	70	69	71	69	69	69	70
13	71	71	71	70	69	71	69	69	69	70
13.25	71	71	71	70	69	71	69	69	69	70
13.5	71	71	71	70	70	70	69	69	69	70
13.75	71	71	71	70	69	71	69	69	69	70
14	71	71	71	70	69	71	69	69	69	70
14.25	71	71	71	70	70	71	69	69	69	70
14.5	71	71	71	70	70	71	69	69	69	70
14.75	71	71	71	70	70	71	69	69	69	70
15	71	71	71	70	70	70	69	69	69	70
15.25	71	71	71	70	70	71	69	69	69	70
15.5	71	71	71	70	70	70	69	69	69	70
15.75	71	71	71	70	70	71	69	69	69	70
16	71	71	71	70	69	71	69	69	69	70
16.25	71	71	71	70	69	71	69	69	69	70
16.5	71	71	71	70	69	71	69	69	69	70
16.75	71	71	71	70	69	71	69	69	69	70
17	71	71	71	70	69	71	69	69	69	70
17.25	71	71	71	70	69	71	69	69	69	70
17.5	71	71	71	70	69	71	68	69	69	70
17.75	71	71	71	70	69	71	69	69	69	70
18	71	71	71	70	70	71	69	69	69	70
18.25	71	71	71	70	69	70	69	69	69	70
18.5	71	71	71	70	69	70	69	69	69	70
18.75	71	71	71	70	70	71	69	69	69	70
19	71	71	71	70	70	71	69	69	69	70
19.25	71	71	71	70	69	71	69	69	69	70
19.5	71	71	71	70	70	71	69	69	69	70
19.75	71	71	71	70	70	71	69	69	69	70
20	71	71	71	70	70	71	69	69	69	70
20.25	71	71	71	70	70	71	69	69	69	70
20.5	71	71	71	70	70	71	69	69	69	70
20.75	71	71	71	70	70	71	69	69	69	70
21	71	71	71	70	70	71	69	69	69	70
21.25	71	71	71	70	69	71	69	69	69	70
21.5	71	71	71	70	69	71	69	69	69	70
21.75	71	71	71	70	69	71	69	69	69	70
22	71	71	71	70	70	71	69	69	69	70
22.25	71	71	71	70	69	70	69	69	69	70
22.5	71	71	71	70	69	71	69	69	69	70
22.75	71	71	71	70	69	71	69	69	69	70
23	71	71	71	70	70	71	69	69	69	70
23.25	71	71	71	70	70	71	69	69	69	70
23.5	71	71	71	70	70	71	69	69	69	70
23.75	71	71	71	70	70	71	69	69	69	70
24	71	71	71	70	70	71	69	69	69	70
24.25	71	71	71	70	70	71	69	69	69	70
24.5	71	71	71	70	70	71	69	69	69	70
24.75	71	71	71	70	70	71	69	69	69	70
25	71	71	71	70	70	71	69	69	69	70
25.25	71	71	71	70	70	71	69	69	69	70
25.5	71	71	71	70	70	71	69	69	69	70
25.75	71	71	71	70	70	71	69	69	69	70
26	71	71	71	70	70	71	69	69	69	70
26.25	71	71	71	70	70	71	69	69	69	70
26.5	71	71	71	70	70	71	69	69	69	70
26.75	71	71	71	70	70	71	69	69	69	70
27	71	71	71	70	70	71	69	69	69	70
27.25	71	71	71	70	70	71	69	69	69	70
27.5	71	71	71	70	70	71	69	69	69	70

Time (minutes)	Unexposed Temperatures									
	TC 1	TC 2	TC 3	TC 4	TC 5	TC 6	TC 7	TC 8	TC 9	Average
27.75	71	71	71	70	70	71	69	69	69	70
28	71	71	71	70	70	71	69	69	69	70
28.25	71	71	71	70	70	71	69	69	69	70
28.5	71	71	71	70	70	71	69	69	69	70
28.75	71	71	71	70	70	71	69	69	69	70
29	71	71	71	70	70	71	69	69	69	70
29.25	71	71	71	70	70	71	69	69	69	70
29.5	71	71	71	70	70	71	69	69	69	70
29.75	71	71	71	70	70	71	69	69	69	70
30	71	71	71	70	70	71	69	69	69	70
30.25	71	71	71	70	70	71	69	69	69	70
30.5	71	71	71	70	70	71	69	69	69	70
30.75	71	71	71	70	70	71	69	69	69	70
31	71	71	71	70	70	71	69	69	69	70
31.25	71	71	71	70	70	71	69	69	69	70
31.5	71	71	71	70	70	71	69	69	69	70
31.75	71	71	71	70	70	71	69	69	69	70
32	71	71	71	70	70	71	69	69	69	70
32.25	71	71	71	70	70	71	69	69	69	70
32.5	71	71	71	70	70	71	69	69	69	70
32.75	71	71	71	70	70	71	69	69	69	70
33	71	71	71	70	70	71	69	69	69	70
33.25	71	71	71	70	70	71	69	69	69	70
33.5	71	71	71	70	70	71	69	69	69	70
33.75	71	71	71	70	70	71	69	69	69	70
34	71	71	71	70	70	71	69	69	69	70
34.25	71	71	71	70	70	71	69	69	69	70
34.5	71	71	71	70	70	71	69	69	69	70
34.75	71	71	71	70	70	71	69	69	69	70
35	71	71	71	70	70	71	69	69	69	70
35.25	71	71	71	70	70	71	69	69	69	70
35.5	71	71	71	70	69	71	69	69	69	70
35.75	71	71	71	70	70	71	69	69	69	70
36	71	71	71	70	70	71	69	69	69	70
36.25	71	71	71	70	70	71	69	69	69	70
36.5	71	71	71	70	70	71	69	69	69	70
36.75	71	71	71	70	70	71	69	69	69	70
37	71	71	71	70	70	71	69	69	69	70
37.25	71	71	71	70	70	71	69	69	69	70
37.5	71	71	71	70	70	71	69	69	69	70
37.75	71	71	71	70	70	71	69	69	69	70
38	71	71	71	70	70	71	69	69	69	70
38.25	71	71	71	70	70	71	69	69	69	70
38.5	71	71	71	70	70	71	69	69	69	70
38.75	71	71	71	70	70	71	69	69	69	70
39	71	71	71	70	70	71	69	69	69	70
39.25	71	71	71	70	70	71	69	69	69	70
39.5	71	71	71	70	70	71	69	69	69	70
39.75	71	71	71	70	70	71	69	69	69	70
40	71	71	71	70	70	71	69	69	69	70
40.25	71	71	71	70	70	71	69	69	69	70
40.5	71	71	71	70	70	71	69	69	69	70
40.75	71	71	71	70	70	71	69	69	69	70
41	71	71	71	70	70	71	69	69	69	70
41.25	71	71	71	70	70	71	69	69	69	70
41.5	71	71	71	70	70	71	69	69	69	70
41.75	71	71	71	70	70	71	69	69	69	70
42	71	71	71	70	70	71	69	69	69	70
42.25	71	71	71	70	70	71	69	69	69	70
42.5	71	71	71	70	70	71	69	69	69	70

Time (minutes)	Unexposed Temperatures									
	TC 1	TC 2	TC 3	TC 4	TC 5	TC 6	TC 7	TC 8	TC 9	Average
42.75	71	71	71	70	70	71	69	69	69	70
43	71	71	71	70	70	71	69	69	69	70
43.25	71	71	71	70	70	71	69	69	69	70
43.5	71	71	71	70	70	71	69	69	69	70
43.75	71	71	71	70	70	71	69	69	69	70
44	71	71	71	70	70	71	69	69	69	70
44.25	71	71	71	70	70	71	69	69	69	70
44.5	71	71	71	70	70	71	69	69	69	70
44.75	71	71	71	70	70	71	69	69	69	70
45	71	71	71	70	70	71	69	69	69	70
45.25	71	71	71	70	70	71	69	69	69	70
45.5	71	71	71	70	70	71	69	69	69	70
45.75	71	71	71	70	70	71	69	69	69	70
46	71	71	71	70	70	71	69	69	69	70
46.25	71	71	71	70	70	71	69	69	69	70
46.5	71	71	71	70	70	71	69	69	69	70
46.75	71	71	71	70	70	71	69	69	69	70
47	71	71	71	70	70	71	69	69	69	70
47.25	71	71	71	70	70	71	69	69	69	70
47.5	71	71	71	70	70	71	69	69	69	70
47.75	71	71	71	70	70	71	69	69	69	70
48	71	71	71	70	70	71	69	69	69	70
48.25	71	71	71	70	70	71	69	69	69	70
48.5	71	71	71	70	70	71	69	69	69	70
48.75	71	71	71	70	70	71	69	69	69	70
49	71	71	71	70	70	71	69	69	69	70
49.25	71	71	71	70	70	71	69	69	69	70
49.5	71	71	71	70	70	71	69	69	69	70
49.75	71	71	71	70	70	71	69	69	69	70
50	71	71	71	70	70	71	69	69	69	70
50.25	71	71	71	70	70	71	69	69	69	70
50.5	71	71	71	70	70	71	69	69	69	70
50.75	71	71	71	70	70	71	69	69	69	70
51	71	71	71	70	70	71	69	69	69	70
51.25	71	71	71	70	70	71	69	69	69	70
51.5	71	71	71	70	70	71	69	69	69	70
51.75	71	71	71	70	70	71	69	69	69	70
52	71	71	71	70	70	71	69	69	69	70
52.25	71	71	71	70	70	71	69	69	69	70
52.5	71	71	71	70	70	71	69	69	69	70
52.75	71	71	71	70	70	71	69	69	69	70
53	71	71	71	70	70	71	69	69	69	70
53.25	71	71	71	70	70	71	69	69	69	70
53.5	71	71	71	70	70	71	69	69	69	70
53.75	71	72	71	70	70	71	69	69	69	70
54	71	71	71	70	70	71	69	69	69	70
54.25	71	71	71	70	70	71	69	69	69	70
54.5	71	72	71	70	70	71	69	69	69	70
54.75	71	71	71	70	70	71	69	69	69	70
55	71	71	71	70	70	71	69	69	69	70
55.25	71	71	71	70	70	71	69	69	69	70
55.5	71	71	71	70	70	71	69	69	69	70
55.75	71	71	71	70	70	71	69	69	69	70
56	71	71	71	70	70	71	69	69	69	70
56.25	71	71	71	70	70	71	69	69	69	70
56.5	71	71	71	70	70	71	69	69	69	70
56.75	71	71	71	70	70	71	69	69	69	70
57	71	71	71	70	70	71	69	69	69	70
57.25	71	71	71	70	70	71	69	69	69	70
57.5	71	71	71	70	70	71	69	69	69	70

Time (minutes)	Unexposed Temperatures									
	TC 1	TC 2	TC 3	TC 4	TC 5	TC 6	TC 7	TC 8	TC 9	Average
57.75	71	71	71	70	70	71	69	69	69	70
58	71	72	71	70	70	71	69	69	69	70
58.25	71	71	71	70	70	71	69	69	69	70
58.5	71	72	71	70	70	71	69	69	69	70
58.75	71	72	72	70	70	71	69	69	69	70
59	71	71	71	70	70	71	69	69	69	70
59.25	71	71	71	70	70	71	69	69	69	70
59.5	71	71	71	70	70	71	69	69	69	70
59.75	71	71	71	70	70	71	69	69	69	70
60	71	71	71	70	70	71	69	69	69	70
60.25	71	71	71	70	70	71	69	69	69	70
60.5	71	71	71	70	70	71	69	69	69	70
60.75	71	71	71	70	70	71	69	69	69	70
61	71	71	71	70	70	71	69	69	69	70
61.25	71	71	71	70	70	71	69	69	69	70
61.5	71	71	71	70	70	71	69	69	69	70
61.75	71	71	71	70	70	71	69	69	69	70
62	71	71	71	70	70	71	69	69	69	70
62.25	71	71	71	70	70	71	69	69	69	70
62.5	71	72	71	70	70	71	69	69	69	70
62.75	71	72	71	70	70	71	69	69	69	70
63	71	71	71	70	70	71	69	69	69	70
63.25	71	72	71	70	70	71	69	69	69	70
63.5	71	72	71	70	70	71	69	69	69	70
63.75	71	72	71	70	70	71	69	69	69	70
64	71	72	71	70	70	71	69	69	69	70
64.25	71	71	71	70	70	71	69	69	69	70
64.5	71	71	71	70	70	71	69	69	69	70
64.75	71	72	71	70	70	71	69	69	69	70
65	71	72	71	70	70	71	69	69	69	70
65.25	71	71	71	70	70	71	69	69	69	70
65.5	71	71	71	70	70	71	69	69	69	70
65.75	71	71	71	70	70	71	69	69	69	70
66	71	72	71	70	70	71	69	69	69	70
66.25	71	72	71	70	70	71	69	69	69	70
66.5	71	72	71	70	70	71	69	69	69	70
66.75	71	72	71	70	70	71	69	69	69	70
67	71	72	71	70	70	71	69	69	69	70
67.25	71	72	71	70	70	71	69	69	69	70
67.5	71	72	71	70	70	71	69	69	69	70
67.75	71	72	71	70	70	71	69	69	69	70
68	71	72	71	70	70	71	69	69	69	70
68.25	72	72	71	70	70	71	69	69	69	70
68.5	71	72	71	70	70	71	69	70	69	70
68.75	71	72	71	70	70	71	69	70	69	70
69	71	72	71	70	70	71	69	70	69	70
69.25	71	72	71	70	70	71	69	70	69	70
69.5	71	72	71	70	70	71	69	70	69	70
69.75	71	72	71	70	70	71	69	70	69	70
70	71	72	71	70	70	71	69	70	69	70
70.25	71	72	71	70	70	71	69	70	69	70
70.5	71	72	71	70	70	71	69	70	69	70
70.75	72	72	71	70	70	71	69	70	69	70
71	71	72	71	70	70	71	69	70	69	70
71.25	72	72	71	70	70	71	69	70	69	70
71.5	72	72	71	70	70	71	69	70	69	70
71.75	72	72	71	70	70	71	69	70	69	70
72	72	72	71	70	70	71	69	70	69	70
72.25	72	72	72	70	70	71	69	70	69	70
72.5	71	72	71	70	70	71	69	70	69	70

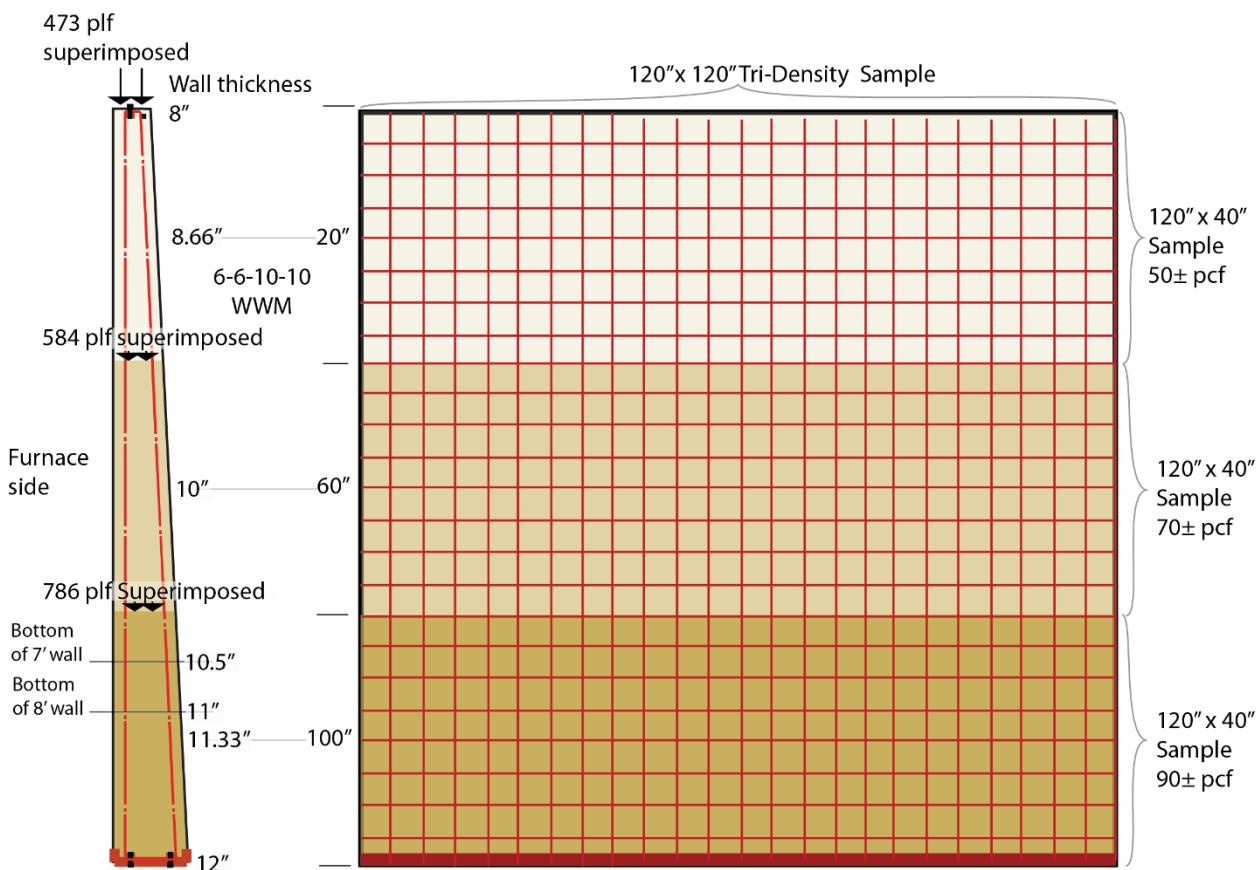
Time (minutes)	Unexposed Temperatures									
	TC 1	TC 2	TC 3	TC 4	TC 5	TC 6	TC 7	TC 8	TC 9	Average
72.75	72	72	71	70	70	71	69	70	69	70
73	71	72	71	70	70	71	69	70	69	70
73.25	72	72	72	70	70	71	69	70	69	70
73.5	72	72	72	70	70	71	69	70	69	70
73.75	72	72	72	70	70	71	69	70	69	70
74	72	72	72	70	70	71	69	70	69	70
74.25	72	72	72	70	70	71	69	70	69	70
74.5	72	72	72	70	70	71	69	70	69	70
74.75	72	72	71	70	70	71	69	70	69	70
75	71	72	71	70	70	71	69	70	69	70
75.25	72	72	72	70	70	71	69	70	70	70
75.5	72	72	71	70	70	71	69	70	70	70
75.75	71	72	72	70	70	71	69	70	70	70
76	72	72	72	70	70	71	69	70	70	70
76.25	71	72	72	70	70	71	69	70	70	70
76.5	71	72	72	70	70	71	69	70	70	71
76.75	71	72	72	70	70	71	69	70	70	70
77	72	72	72	70	70	71	69	70	70	70
77.25	71	72	72	70	70	71	69	70	70	70
77.5	71	72	72	70	70	71	69	70	70	70
77.75	71	72	71	70	70	71	69	70	70	70
78	71	72	71	70	70	71	69	70	70	70
78.25	71	72	71	70	70	71	69	70	70	70
78.5	71	72	71	70	70	71	69	70	70	70
78.75	71	72	71	70	70	71	69	70	70	70
79	71	72	71	70	70	71	69	70	70	70
79.25	71	72	71	70	70	71	69	70	70	70
79.5	71	72	71	70	70	71	69	70	70	70
79.75	72	72	71	70	70	71	69	70	70	71
80	71	72	71	70	70	71	69	70	70	70
80.25	71	72	71	70	70	71	69	70	70	70
80.5	72	72	71	70	70	71	69	70	70	71
80.75	72	72	71	70	70	71	69	70	70	71
81	71	72	71	70	70	71	69	70	70	70
81.25	72	72	71	70	70	71	69	70	70	71
81.5	71	72	71	70	70	71	69	70	70	70
81.75	71	72	71	70	70	71	69	70	70	70
82	72	72	72	70	70	71	69	70	70	71
82.25	71	72	71	70	70	71	69	70	70	71
82.5	72	72	72	70	70	71	70	70	70	71
82.75	71	72	71	70	70	71	69	70	70	71
83	71	72	71	70	70	71	69	70	70	71
83.25	71	72	71	70	70	71	69	70	70	71
83.5	71	72	71	70	70	71	70	70	70	71
83.75	72	72	71	70	70	71	70	70	70	71
84	72	72	71	70	70	71	70	70	70	71
84.25	72	72	71	70	70	71	70	70	70	71
84.5	72	72	71	70	70	71	70	70	70	71
84.75	72	72	71	70	70	71	70	70	70	71
85	71	72	71	70	70	71	70	70	70	71
85.25	72	72	71	70	70	71	70	70	70	71
85.5	71	72	71	70	70	71	70	70	70	71
85.75	71	72	71	70	70	71	70	70	70	71
86	72	72	72	70	70	71	70	70	70	71
86.25	72	72	71	70	70	71	70	70	70	71
86.5	72	72	71	70	70	71	70	70	70	71
86.75	71	72	71	70	70	71	70	70	70	71
87	71	72	71	70	70	71	70	70	70	71
87.25	72	72	71	70	70	71	70	70	70	71
87.5	72	72	71	70	70	71	70	70	70	71

Time (minutes)	Unexposed Temperatures									
	TC 1	TC 2	TC 3	TC 4	TC 5	TC 6	TC 7	TC 8	TC 9	Average
87.75	71	72	71	70	70	71	70	70	70	71
88	72	72	72	70	70	71	70	70	70	71
88.25	71	72	71	70	70	71	70	70	70	71
88.5	72	72	71	70	70	71	70	70	70	71
88.75	71	72	71	70	70	71	70	70	70	71
89	71	72	71	70	70	71	70	70	70	71
89.25	71	72	71	70	70	71	70	70	70	71
89.5	71	72	71	70	70	71	70	70	70	71
89.75	72	72	71	70	70	71	70	70	70	71
90	71	72	71	70	70	71	70	70	70	71
90.25	72	72	71	70	70	71	70	70	70	71
90.5	71	72	71	70	70	71	70	70	70	71
90.75	71	72	71	70	70	71	70	70	70	71
91	72	72	71	70	70	71	70	70	70	71
91.25	71	72	71	70	70	71	70	70	70	71
91.5	71	72	71	70	70	71	70	70	70	71
91.75	71	72	71	70	70	71	70	70	70	71
92	71	72	71	70	70	71	70	70	70	71
92.25	71	72	72	70	70	71	70	70	70	71
92.5	72	72	72	70	70	71	70	70	70	71
92.75	71	72	71	70	70	71	70	70	70	71
93	71	72	71	70	70	71	70	70	70	71
93.25	71	72	71	70	70	71	70	70	70	71
93.5	71	72	71	70	70	71	70	70	70	71
93.75	71	72	71	70	70	71	70	70	70	71
94	71	72	71	70	70	71	70	70	70	71
94.25	71	72	71	70	70	71	70	70	70	71
94.5	71	72	71	70	70	71	70	70	70	71
94.75	71	72	71	70	70	71	70	70	70	71
95	71	72	71	70	70	71	70	70	70	71
95.25	71	72	71	70	70	71	70	70	70	71
95.5	71	72	71	70	70	71	70	70	70	71
95.75	71	72	71	70	70	71	70	70	70	71
96	71	72	71	70	70	71	70	70	70	71
96.25	71	72	71	70	70	71	70	70	70	71
96.5	71	72	71	70	70	71	70	70	70	71
96.75	71	72	71	70	70	71	70	70	70	71
97	71	72	71	70	70	71	70	70	70	71
97.25	71	72	71	70	70	71	70	70	70	71
97.5	71	72	71	70	70	71	70	70	70	71
97.75	71	72	71	70	70	71	70	70	70	71
98	71	72	71	70	70	71	70	70	70	71
98.25	71	72	71	70	70	71	70	71	70	71
98.5	71	72	71	70	70	71	70	70	70	71
98.75	71	72	71	70	70	71	70	71	70	71
99	71	72	71	70	70	71	70	71	71	71
99.25	71	72	71	70	70	71	70	71	71	71
99.5	71	72	71	70	70	71	70	71	71	71
99.75	71	72	71	70	70	71	71	71	71	71
100	71	72	71	70	70	71	70	71	71	71
100.25	71	72	71	70	70	71	70	71	71	71
100.5	71	72	71	70	70	71	70	71	71	71
100.75	71	72	71	70	70	71	71	71	71	71
101	71	72	71	70	70	71	71	71	71	71
101.25	71	72	71	70	70	71	71	71	71	71
101.5	71	72	71	70	70	71	71	71	71	71
101.75	71	72	71	70	70	71	71	71	71	71
102	71	71	71	70	70	71	71	71	71	71
102.25	72	72	71	70	70	71	71	71	71	71
102.5	71	72	71	70	70	71	71	71	71	71

Time (minutes)	Unexposed Temperatures									
	TC 1	TC 2	TC 3	TC 4	TC 5	TC 6	TC 7	TC 8	TC 9	Average
102.75	71	72	71	70	70	71	71	71	71	71
103	71	72	71	70	70	71	71	71	71	71
103.25	71	72	71	70	70	71	71	71	71	71
103.5	71	72	71	70	70	71	71	71	71	71
103.75	71	72	71	70	70	71	71	71	71	71
104	71	72	71	70	70	71	71	71	71	71
104.25	71	72	71	70	70	71	71	71	71	71
104.5	71	72	71	70	70	71	71	71	71	71
104.75	71	72	71	70	70	71	71	71	71	71
105	71	72	71	70	70	71	71	71	71	71
105.25	71	72	71	70	70	71	71	71	71	71
105.5	71	72	71	70	70	71	71	71	71	71
105.75	71	72	71	70	70	71	71	71	71	71
106	71	72	71	70	70	71	71	71	71	71
106.25	71	71	71	70	70	71	71	71	71	71
106.5	71	72	71	70	70	71	71	71	71	71
106.75	71	71	71	70	70	71	71	71	71	71
107	71	72	71	70	70	71	71	71	71	71
107.25	71	72	71	70	70	71	71	71	71	71
107.5	71	72	71	70	70	71	71	71	71	71
107.75	71	72	71	70	70	71	71	71	71	71
108	71	72	71	70	70	71	71	71	71	71
108.25	71	71	71	70	70	71	71	71	71	71
108.5	71	72	71	70	70	71	71	71	71	71
108.75	71	72	71	70	70	71	71	71	71	71
109	71	72	71	70	70	71	71	71	71	71
109.25	71	72	71	70	70	71	71	71	71	71
109.5	71	72	71	70	70	71	71	71	71	71
109.75	71	71	71	70	70	71	71	71	71	71
110	71	71	71	70	70	71	71	71	71	71
110.25	71	71	71	70	70	71	71	71	71	71
110.5	71	71	71	70	70	71	71	71	71	71
110.75	71	72	71	70	70	71	71	71	71	71
111	71	71	71	70	70	71	71	71	71	71
111.25	71	72	71	70	70	71	72	71	71	71
111.5	71	71	71	70	70	71	72	71	72	71
111.75	71	71	71	70	70	71	72	71	72	71
112	71	71	71	70	70	71	72	72	72	71
112.25	71	71	71	70	70	71	72	72	72	71
112.5	71	72	71	70	70	71	72	72	72	71
112.75	71	71	71	70	70	71	72	72	72	71
113	71	71	71	70	70	71	72	72	72	71
113.25	71	71	71	70	70	71	72	72	72	71
113.5	71	71	71	70	70	71	72	72	72	71
113.75	71	71	71	70	70	71	72	72	72	71
114	71	71	71	70	70	71	72	72	72	71
114.25	71	71	71	70	70	71	72	72	72	71
114.5	71	71	71	70	70	71	72	72	72	71
114.75	71	71	71	70	70	71	72	72	72	71
115	71	71	71	70	70	71	72	72	72	71
115.25	71	71	71	70	70	71	72	72	72	71
115.5	71	71	71	70	70	71	72	72	72	71
115.75	71	71	71	70	70	71	72	72	72	71
116	71	71	71	70	70	71	72	72	72	71
116.25	71	71	71	70	70	71	72	72	72	71
116.5	71	71	71	70	70	71	72	72	72	71
116.75	71	71	71	70	70	71	72	72	72	71
117	71	71	71	70	70	71	72	72	72	71
117.25	71	71	71	70	70	71	72	72	72	71
117.5	71	71	71	70	70	71	72	72	72	71

Time (minutes)	Unexposed Temperatures									Average
	TC 1	TC 2	TC 3	TC 4	TC 5	TC 6	TC 7	TC 8	TC 9	
117.75	71	71	71	70	70	71	72	72	72	71
118	71	71	71	70	70	71	72	72	72	71
118.25	71	71	71	70	70	71	72	72	72	71
118.5	71	71	71	70	70	71	72	72	72	71
118.75	71	71	71	70	70	71	72	72	72	71
119	71	71	71	70	70	71	72	72	72	71
119.25	71	71	71	70	70	71	73	72	72	71
119.5	71	71	71	70	70	71	73	72	72	71
119.75	71	71	71	70	70	71	73	72	72	71
120	71	71	71	70	70	71	73	72	72	71

Appendix C – Drawings



Drawing No. 1
Tri-Density Wall Detail – Provided by Quail Springs

Appendix D - Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
0	01/11/2022	N/A	Original report issue