

# Supplementary Material - SPSS final model outputs

## Summer temperature analyses

### 5-day mean 'maximum' temperature comparisons

**Type III Tests of Fixed Effects<sup>a</sup>**

Source	Numerator df	Denominator df	F	Sig.
Design	3	8.535	32.945	.000
Chamber	3	288.000	30.704	.000
Design * Chamber	9	288.000	11.060	.000

a. Dependent Variable: MaxTemp.

**Estimates of Covariance Parameters<sup>a</sup>**

Parameter		Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Residual		1.122003	.093500	12.000	.000	.952929	1.321075
Intercept [subject =	Variance	.051164	.235881	.217	.828	6.091162E-6	429.767460
BoxPair]							
Intercept [subject =	Variance	.468254	.302772	1.547	.122	.131855	1.662902
Member * BoxPair]							
Day	Variance	7.404407	5.248103	1.411	.158	1.845758	29.703374

a. Dependent Variable: MaxTemp.

## Design

**Pairwise Comparisons<sup>a</sup>**

Chamber	(I) Design	(J) Design	Mean Difference (I-J)	Std. Error	df	Sig. <sup>c</sup>	95% Confidence Interval for Difference <sup>c</sup>	
							Lower Bound	Upper Bound
1	black ply	white ply	5.958*	.588	10.447	.000	4.056	7.860
		black wc	3.223*	.610	19.817	.000	1.442	5.004
		white wc	6.267*	.610	19.817	.000	4.486	8.048
	white ply	black ply	-5.958*	.588	10.447	.000	-7.860	-4.056
		black wc	-2.735*	.610	19.817	.001	-4.516	-.954
		white wc	.309	.610	19.817	.997	-1.472	2.090
	black wc	black ply	-3.223*	.610	19.817	.000	-5.004	-1.442

		white ply	2.735*	.610	19.817	.001	.954	4.516
		white wc	3.044*	.588	10.447	.002	1.142	4.946
	white wc	black ply	-6.267*	.610	19.817	.000	-8.048	-4.486
		white ply	-.309	.610	19.817	.997	-2.090	1.472
		black wc	-3.044*	.588	10.447	.002	-4.946	-1.142
2	black ply	white ply	5.179*	.588	10.447	.000	3.277	7.081
		black wc	3.407*	.610	19.817	.000	1.626	5.188
		white wc	5.429*	.610	19.817	.000	3.648	7.210
	white ply	black ply	-5.179*	.588	10.447	.000	-7.081	-3.277
		black wc	-1.772	.610	19.817	.052	-3.553	.009
		white wc	.250	.610	19.817	.999	-1.531	2.031
	black wc	black ply	-3.407*	.610	19.817	.000	-5.188	-1.626
		white ply	1.772	.610	19.817	.052	-.009	3.553
		white wc	2.022*	.588	10.447	.035	.120	3.924
	white wc	black ply	-5.429*	.610	19.817	.000	-7.210	-3.648
		white ply	-.250	.610	19.817	.999	-2.031	1.531
		black wc	-2.022*	.588	10.447	.035	-3.924	-.120
3	black ply	white ply	3.819*	.588	10.447	.000	1.917	5.721
		black wc	2.413*	.610	19.817	.005	.632	4.194
		white wc	3.379*	.610	19.817	.000	1.598	5.160
	white ply	black ply	-3.819*	.588	10.447	.000	-5.721	-1.917
		black wc	-1.406	.610	19.817	.177	-3.188	.375
		white wc	-.440	.610	19.817	.980	-2.221	1.341
	black wc	black ply	-2.413*	.610	19.817	.005	-4.194	-.632
		white ply	1.406	.610	19.817	.177	-.375	3.188
		white wc	.967	.588	10.447	.567	-.935	2.869
	white wc	black ply	-3.379*	.610	19.817	.000	-5.160	-1.598
		white ply	.440	.610	19.817	.980	-1.341	2.221
		black wc	-.967	.588	10.447	.567	-2.869	.935
4	black ply	white ply	2.582*	.588	10.447	.007	.680	4.484
		black wc	.883	.610	19.817	.657	-.898	2.664
		white wc	2.789*	.610	19.817	.001	1.008	4.571
	white ply	black ply	-2.582*	.588	10.447	.007	-4.484	-.680
		black wc	-1.699	.610	19.817	.067	-3.480	.082
		white wc	.207	.610	19.817	1.000	-1.574	1.989
	black wc	black ply	-.883	.610	19.817	.657	-2.664	.898
		white ply	1.699	.610	19.817	.067	-.082	3.480
		white wc	1.907*	.588	10.447	.049	.005	3.809
	white wc	black ply	-2.789*	.610	19.817	.001	-4.571	-1.008
		white ply	-.207	.610	19.817	1.000	-1.989	1.574

black wc	-1.907*	.588	10.447	.049	-3.809	-0.005
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Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

a. Dependent Variable: MaxTemp.

c. Adjustment for multiple comparisons: Sidak.

## Chamber

### Pairwise Comparisons<sup>a</sup>

Design	(I) Chamber	(J) Chamber	Mean Difference (I-J)	Std. Error	df	Sig. <sup>c</sup>	95% Confidence Interval for Difference <sup>c</sup>	
							Lower Bound	Upper Bound
black ply	1	2	1.023*	.335	288.000	.015	.136	1.911
		3	2.774*	.335	288.000	.000	1.886	3.661
		4	3.713*	.335	288.000	.000	2.826	4.601
	2	1	-1.023*	.335	288.000	.015	-1.911	-.136
		3	1.750*	.335	288.000	.000	.863	2.638
		4	2.690*	.335	288.000	.000	1.803	3.577
	3	1	-2.774*	.335	288.000	.000	-3.661	-1.886
		2	-1.750*	.335	288.000	.000	-2.638	-.863
		4	.940*	.335	288.000	.032	.052	1.827
	4	1	-3.713*	.335	288.000	.000	-4.601	-2.826
		2	-2.690*	.335	288.000	.000	-3.577	-1.803
		3	-.940*	.335	288.000	.032	-1.827	-.052
white ply	1	2	.245	.335	288.000	.977	-.643	1.132
		3	.635	.335	288.000	.305	-.252	1.523
		4	.338	.335	288.000	.896	-.550	1.225
	2	1	-.245	.335	288.000	.977	-1.132	.643
		3	.390	.335	288.000	.814	-.497	1.278
		4	.093	.335	288.000	1.000	-.795	.980
	3	1	-.635	.335	288.000	.305	-1.523	.252
		2	-.390	.335	288.000	.814	-1.278	.497
		4	-.298	.335	288.000	.940	-1.185	.590
	4	1	-.338	.335	288.000	.896	-1.225	.550
		2	-.093	.335	288.000	1.000	-.980	.795
		3	.298	.335	288.000	.940	-.590	1.185
black wc	1	2	1.208*	.335	288.000	.002	.320	2.095
		3	1.964*	.335	288.000	.000	1.076	2.851
		4	1.373*	.335	288.000	.000	.486	2.261

	2	1	-1.208*	.335	288.000	.002	-2.095	-.320
		3	.756	.335	288.000	.140	-.132	1.643
		4	.165	.335	288.000	.997	-.722	1.053
	3	1	-1.964*	.335	288.000	.000	-2.851	-1.076
		2	-.756	.335	288.000	.140	-1.643	.132
		4	-.590	.335	288.000	.390	-1.478	.297
	4	1	-1.373*	.335	288.000	.000	-2.261	-.486
		2	-.165	.335	288.000	.997	-1.053	.722
		3	.590	.335	288.000	.390	-.297	1.478
white wc	1	2	.186	.335	288.000	.994	-.701	1.074
		3	-.114	.335	288.000	1.000	-1.001	.774
		4	.236	.335	288.000	.981	-.651	1.124
	2	1	-.186	.335	288.000	.994	-1.074	.701
		3	-.300	.335	288.000	.939	-1.187	.588
		4	.050	.335	288.000	1.000	-.837	.937
	3	1	.114	.335	288.000	1.000	-.774	1.001
		2	.300	.335	288.000	.939	-.588	1.187
		4	.350	.335	288.000	.880	-.538	1.237
	4	1	-.236	.335	288.000	.981	-1.124	.651
		2	-.050	.335	288.000	1.000	-.937	.837
		3	-.350	.335	288.000	.880	-1.237	.538

Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

a. Dependent Variable: MaxTemp.

c. Adjustment for multiple comparisons: Sidak.

## 5-day mean 'warmest day period' temperature comparisons

### Type III Tests of Fixed Effects<sup>a</sup>

Source	Numerator df	Denominator df	F	Sig.
Design	3	8.373	27.151	.000
Chamber	3	288.000	30.867	.000
Design * Chamber	9	288.000	12.751	.000

a. Dependent Variable: AftMeanTemp.

### Estimates of Covariance Parameters<sup>a</sup>

Parameter	Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Residual	.359991	.029999	12.000	.000	.305744	.423863
Intercept [subject = Variance BoxPair]	.012404	.182571	.068	.946	3.671626E-15	4190416286 6.915504
Intercept [subject = Variance Member * BoxPair]	.416630	.250938	1.660	.097	.127958	1.356540
Day Variance	3.913001	2.770887	1.412	.158	.976685	15.677096

a. Dependent Variable: AftMeanTemp.

## Design

### Pairwise Comparisons<sup>a</sup>

Chamber	(I) Design	(J) Design	Mean Difference (I-J)	Std. Error	df	Sig. <sup>c</sup>	95% Confidence Interval for Difference <sup>c</sup>	
							Lower Bound	Upper Bound
1	black ply	white ply	4.122*	.494	7.581	.000	2.381	5.864
		black wc	2.109*	.501	15.053	.004	.596	3.623
		white wc	4.592*	.501	15.053	.000	3.078	6.105
	white ply	black ply	-4.122*	.494	7.581	.000	-5.864	-2.381
		black wc	-2.013*	.501	15.053	.007	-3.527	-.500
		white wc	.469	.501	15.053	.933	-1.045	1.983
	black wc	black ply	-2.109*	.501	15.053	.004	-3.623	-.596
		white ply	2.013*	.501	15.053	.007	.500	3.527
		white wc	2.482*	.494	7.581	.007	.741	4.224
	white wc	black ply	-4.592*	.501	15.053	.000	-6.105	-3.078
		white ply	-.469	.501	15.053	.933	-1.983	1.045
		black wc	-2.482*	.494	7.581	.007	-4.224	-.741

2	black ply	white ply	4.020*	.494	7.581	.000	2.278	5.761
		black wc	2.563*	.501	15.053	.001	1.049	4.076
		white wc	4.493*	.501	15.053	.000	2.979	6.006
	white ply	black ply	-4.020*	.494	7.581	.000	-5.761	-2.278
		black wc	-1.457	.501	15.053	.063	-2.971	.057
		white wc	.473	.501	15.053	.931	-1.041	1.986
	black wc	black ply	-2.563*	.501	15.053	.001	-4.076	-1.049
		white ply	1.457	.501	15.053	.063	-.057	2.971
		white wc	1.930*	.494	7.581	.030	.188	3.671
	white wc	black ply	-4.493*	.501	15.053	.000	-6.006	-2.979
		white ply	-.473	.501	15.053	.931	-1.986	1.041
		black wc	-1.930*	.494	7.581	.030	-3.671	-.188
3	black ply	white ply	3.467*	.494	7.581	.001	1.726	5.209
		black wc	2.049*	.501	15.053	.006	.536	3.563
		white wc	3.122*	.501	15.053	.000	1.608	4.636
	white ply	black ply	-3.467*	.494	7.581	.001	-5.209	-1.726
		black wc	-1.418	.501	15.053	.073	-2.931	.096
		white wc	-.345	.501	15.053	.985	-1.859	1.169
	black wc	black ply	-2.049*	.501	15.053	.006	-3.563	-.536
		white ply	1.418	.501	15.053	.073	-.096	2.931
		white wc	1.073	.494	7.581	.326	-.669	2.814
	white wc	black ply	-3.122*	.501	15.053	.000	-4.636	-1.608
		white ply	.345	.501	15.053	.985	-1.169	1.859
		black wc	-1.073	.494	7.581	.326	-2.814	.669
4	black ply	white ply	2.349*	.494	7.581	.010	.608	4.091
		black wc	.762	.501	15.053	.620	-.752	2.275
		white wc	2.684*	.501	15.053	.000	1.171	4.198
	white ply	black ply	-2.349*	.494	7.581	.010	-4.091	-.608
		black wc	-1.588*	.501	15.053	.037	-3.101	-.074
		white wc	.335	.501	15.053	.987	-1.179	1.849
	black wc	black ply	-.762	.501	15.053	.620	-2.275	.752
		white ply	1.588*	.501	15.053	.037	.074	3.101
		white wc	1.923*	.494	7.581	.030	.181	3.664
	white wc	black ply	-2.684*	.501	15.053	.000	-4.198	-1.171
		white ply	-.335	.501	15.053	.987	-1.849	1.179
		black wc	-1.923*	.494	7.581	.030	-3.664	-.181

Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

a. Dependent Variable: AftMeanTemp.

c. Adjustment for multiple comparisons: Sidak.

# Chamber

## Pairwise Comparisons<sup>a</sup>

Design	(I) Chamber	(J) Chamber	Mean Difference (I-J)	Std. Error	df	Sig. <sup>c</sup>	95% Confidence Interval for Difference <sup>c</sup>	
							Lower Bound	Upper Bound
black ply	1	2	.255	.190	288.000	.695	-.247	.758
		3	1.271*	.190	288.000	.000	.768	1.774
		4	2.056*	.190	288.000	.000	1.553	2.559
	2	1	-.255	.190	288.000	.695	-.758	.247
		3	1.016*	.190	288.000	.000	.513	1.518
		4	1.801*	.190	288.000	.000	1.298	2.303
	3	1	-1.271*	.190	288.000	.000	-1.774	-.768
		2	-1.016*	.190	288.000	.000	-1.518	-.513
		4	.785*	.190	288.000	.000	.282	1.288
	4	1	-2.056*	.190	288.000	.000	-2.559	-1.553
		2	-1.801*	.190	288.000	.000	-2.303	-1.298
		3	-.785*	.190	288.000	.000	-1.288	-.282
white ply	1	2	.153	.190	288.000	.963	-.350	.655
		3	.615*	.190	288.000	.008	.113	1.118
		4	.283	.190	288.000	.587	-.220	.786
	2	1	-.153	.190	288.000	.963	-.655	.350
		3	.463	.190	288.000	.088	-.040	.965
		4	.130	.190	288.000	.983	-.372	.633
	3	1	-.615*	.190	288.000	.008	-1.118	-.113
		2	-.463	.190	288.000	.088	-.965	.040
		4	-.333	.190	288.000	.396	-.835	.170
	4	1	-.283	.190	288.000	.587	-.786	.220
		2	-.130	.190	288.000	.983	-.633	.372
		3	.333	.190	288.000	.396	-.170	.835
black wc	1	2	.709*	.190	288.000	.001	.206	1.211
		3	1.211*	.190	288.000	.000	.708	1.714
		4	.708*	.190	288.000	.001	.206	1.211
	2	1	-.709*	.190	288.000	.001	-1.211	-.206
		3	.502	.190	288.000	.050	.000	1.005
		4	.000	.190	288.000	1.000	-.503	.502
	3	1	-1.211*	.190	288.000	.000	-1.714	-.708
		2	-.502	.190	288.000	.050	-1.005	.000
		4	-.503*	.190	288.000	.050	-1.005	-1.648E-5
	4	1	-.708*	.190	288.000	.001	-1.211	-.206

		2		.000	.190	288.000	1.000	-.502	.503
		3		.503*	.190	288.000	.050	1.648E-5	1.005
white wc	1	2		.156	.190	288.000	.958	-.346	.659
		3		-.199	.190	288.000	.878	-.701	.304
		4		.149	.190	288.000	.967	-.354	.651
	2	1		-.156	.190	288.000	.958	-.659	.346
		3		-.355	.190	288.000	.321	-.857	.148
		4		-.008	.190	288.000	1.000	-.510	.495
	3	1		.199	.190	288.000	.878	-.304	.701
		2		.355	.190	288.000	.321	-.148	.857
		4		.347	.190	288.000	.346	-.155	.850
	4	1		-.149	.190	288.000	.967	-.651	.354
		2		.008	.190	288.000	1.000	-.495	.510
		3		-.347	.190	288.000	.346	-.850	.155

Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

a. Dependent Variable: AftMeanTemp.

c. Adjustment for multiple comparisons: Sidak.

## Maximum temperature comparisons on warmest summer day

### Type III Tests of Fixed Effects<sup>a</sup>

Source	Numerator df	Denominator df	F	Sig.
Design	3	8.666	11.918	.002
Chamber	3	36.000	6.974	.001
Design * Chamber	9	36.000	2.631	.019

a. Dependent Variable: hot summer.

### Estimates of Covariance Parameters<sup>a</sup>

Parameter	Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Residual	1.491364	.351518	4.243	.000	.939623	2.367085
Intercept [subject = Variance BoxPair]	.802411	1.748315	.459	.646	.011214	57.413942
Intercept [subject = Variance Member * BoxPair]	3.031382	1.967393	1.541	.123	.849579	10.816274

a. Dependent Variable: hot summer.



## Design

### Pairwise Comparisons<sup>a</sup>

Chamber	(I) Design	(J) Design	Mean Difference (I-J)	Std. Error	df	Sig. <sup>c</sup>	95% Confidence Interval for Difference <sup>c</sup>	
							Lower Bound	Upper Bound
1	black ply	white ply	8.252*	1.504	10.403	.001	3.388	13.117
		black wc	3.122	1.632	18.142	.360	-1.691	7.936
		white wc	9.010*	1.632	18.142	.000	4.196	13.824
	white ply	black ply	-8.252*	1.504	10.403	.001	-13.117	-3.388
		black wc	-5.130*	1.632	18.142	.033	-9.944	-.316
		white wc	.758	1.632	18.142	.998	-4.056	5.571
	black wc	black ply	-3.122	1.632	18.142	.360	-7.936	1.691
		white ply	5.130*	1.632	18.142	.033	.316	9.944
		white wc	5.888*	1.504	10.403	.016	1.023	10.752
	white wc	black ply	-9.010*	1.632	18.142	.000	-13.824	-4.196
		white ply	-.758	1.632	18.142	.998	-5.571	4.056
		black wc	-5.888*	1.504	10.403	.016	-10.752	-1.023
2	black ply	white ply	7.252*	1.504	10.403	.004	2.388	12.117
		black wc	3.132	1.632	18.142	.356	-1.681	7.946
		white wc	7.505*	1.632	18.142	.001	2.691	12.319
	white ply	black ply	-7.252*	1.504	10.403	.004	-12.117	-2.388
		black wc	-4.120	1.632	18.142	.120	-8.934	.694
		white wc	.253	1.632	18.142	1.000	-4.561	5.066
	black wc	black ply	-3.132	1.632	18.142	.356	-7.946	1.681
		white ply	4.120	1.632	18.142	.120	-.694	8.934
		white wc	4.373	1.504	10.403	.087	-.492	9.237
	white wc	black ply	-7.505*	1.632	18.142	.001	-12.319	-2.691
		white ply	-.253	1.632	18.142	1.000	-5.066	4.561
		black wc	-4.373	1.504	10.403	.087	-9.237	.492
3	black ply	white ply	5.620*	1.504	10.403	.021	.755	10.485
		black wc	2.007	1.632	18.142	.798	-2.806	6.821
		white wc	5.245*	1.632	18.142	.028	.431	10.059
	white ply	black ply	-5.620*	1.504	10.403	.021	-10.485	-.755
		black wc	-3.613	1.632	18.142	.217	-8.426	1.201
		white wc	-.375	1.632	18.142	1.000	-5.189	4.439
	black wc	black ply	-2.007	1.632	18.142	.798	-6.821	2.806
		white ply	3.613	1.632	18.142	.217	-1.201	8.426
		white wc	3.238	1.504	10.403	.291	-1.627	8.102
	white wc	black ply	-5.245*	1.632	18.142	.028	-10.059	-.431

4		white ply	.375	1.632	18.142	1.000	-4.439	5.189
		black wc	-3.238	1.504	10.403	.291	-8.102	1.627
	black ply	white ply	3.732	1.504	10.403	.175	-1.132	8.597
		black wc	.345	1.632	18.142	1.000	-4.469	5.159
		white wc	4.740	1.632	18.142	.055	-.074	9.554
	white ply	black ply	-3.732	1.504	10.403	.175	-8.597	1.132
		black wc	-3.388	1.632	18.142	.276	-8.201	1.426
		white wc	1.008	1.632	18.142	.991	-3.806	5.821
	black wc	black ply	-.345	1.632	18.142	1.000	-5.159	4.469
		white ply	3.388	1.632	18.142	.276	-1.426	8.201
		white wc	4.395	1.504	10.403	.085	-.470	9.260
	white wc	black ply	-4.740	1.632	18.142	.055	-9.554	.074
		white ply	-1.008	1.632	18.142	.991	-5.821	3.806
		black wc	-4.395	1.504	10.403	.085	-9.260	.470

Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

a. Dependent Variable: hot summer.

c. Adjustment for multiple comparisons: Sidak.

## Chamber

### Pairwise Comparisons<sup>a</sup>

Design	(I) Chamber	(J) Chamber	Mean Difference (I-J)	Std. Error	df	Sig. <sup>c</sup>	95% Confidence Interval for Difference <sup>c</sup>	
							Lower Bound	Upper Bound
black ply	1	2	1.643	.864	36.000	.333	-.761	4.046
		3	3.643*	.864	36.000	.001	1.239	6.046
		4	4.533*	.864	36.000	.000	2.129	6.936
	2	1	-1.643	.864	36.000	.333	-4.046	.761
		3	2.000	.864	36.000	.148	-.404	4.404
		4	2.890*	.864	36.000	.011	.486	5.294
	3	1	-3.643*	.864	36.000	.001	-6.046	-1.239
		2	-2.000	.864	36.000	.148	-4.404	.404
		4	.890	.864	36.000	.892	-1.514	3.294
	4	1	-4.533*	.864	36.000	.000	-6.936	-2.129
		2	-2.890*	.864	36.000	.011	-5.294	-.486
		3	-.890	.864	36.000	.892	-3.294	1.514
white ply	1	2	.642	.864	36.000	.976	-1.761	3.046
		3	1.010	.864	36.000	.822	-1.394	3.414

		4	.012	.864	36.000	1.000	-2.391	2.416
	2	1	-.642	.864	36.000	.976	-3.046	1.761
		3	.368	.864	36.000	.999	-2.036	2.771
		4	-.630	.864	36.000	.978	-3.034	1.774
	3	1	-1.010	.864	36.000	.822	-3.414	1.394
		2	-.368	.864	36.000	.999	-2.771	2.036
		4	-.998	.864	36.000	.830	-3.401	1.406
	4	1	-.012	.864	36.000	1.000	-2.416	2.391
		2	.630	.864	36.000	.978	-1.774	3.034
		3	.998	.864	36.000	.830	-1.406	3.401
black wc	1	2	1.653	.864	36.000	.326	-.751	4.056
		3	2.528*	.864	36.000	.035	.124	4.931
		4	1.755	.864	36.000	.263	-.649	4.159
	2	1	-1.653	.864	36.000	.326	-4.056	.751
		3	.875	.864	36.000	.899	-1.529	3.279
		4	.102	.864	36.000	1.000	-2.301	2.506
	3	1	-2.528*	.864	36.000	.035	-4.931	-.124
		2	-.875	.864	36.000	.899	-3.279	1.529
		4	-.773	.864	36.000	.942	-3.176	1.631
	4	1	-1.755	.864	36.000	.263	-4.159	.649
		2	-.102	.864	36.000	1.000	-2.506	2.301
		3	.773	.864	36.000	.942	-1.631	3.176
white wc	1	2	.137	.864	36.000	1.000	-2.266	2.541
		3	-.123	.864	36.000	1.000	-2.526	2.281
		4	.263	.864	36.000	1.000	-2.141	2.666
	2	1	-.137	.864	36.000	1.000	-2.541	2.266
		3	-.260	.864	36.000	1.000	-2.664	2.144
		4	.125	.864	36.000	1.000	-2.279	2.529
	3	1	.123	.864	36.000	1.000	-2.281	2.526
		2	.260	.864	36.000	1.000	-2.144	2.664
		4	.385	.864	36.000	.998	-2.019	2.789
	4	1	-.263	.864	36.000	1.000	-2.666	2.141
		2	-.125	.864	36.000	1.000	-2.529	2.279
		3	-.385	.864	36.000	.998	-2.789	2.019

Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

a. Dependent Variable: hot summer.

c. Adjustment for multiple comparisons: Sidak.

## Detailed investigation of the black plywood box - upper and lower loggers

### Type III Tests of Fixed Effects<sup>a</sup>

Source	Numerator df	Denominator df	F	Sig.
Chamber	3	21.000	9.767	.000
Position	1	21.000	23.467	.000
Chamber * Position	3	21.000	4.047	.020

a. Dependent Variable: MaxTemp.

### Estimates of Covariance Parameters<sup>a</sup>

Parameter	Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval		
					Lower Bound	Upper Bound	
Residual	.276131	.085216	3.240	.001	.150809	.505594	
Intercept	Variance	.181994	.177101	1.028	.304	.027024	1.225665

[subject = Box]

a. Dependent Variable: MaxTemp.

### Pairwise Comparisons<sup>a</sup>

Chamber	(I) Position	(J) Position	Mean Difference (I-J)	Std. Error	df	Sig. <sup>c</sup>	95% Confidence Interval for Difference <sup>c</sup>	
							Lower Bound	Upper Bound
1	upper	lower	1.975*	.372	21.000	.000	1.202	2.748
	lower	upper	-1.975*	.372	21.000	.000	-2.748	-1.202
2	upper	lower	.625	.372	21.000	.107	-.148	1.398
	lower	upper	-.625	.372	21.000	.107	-1.398	.148
3	upper	lower	.750	.372	21.000	.056	-.023	1.523
	lower	upper	-.750	.372	21.000	.056	-1.523	.023
4	upper	lower	.250	.372	21.000	.508	-.523	1.023
	lower	upper	-.250	.372	21.000	.508	-1.023	.523

Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

a. Dependent Variable: MaxTemp.

c. Adjustment for multiple comparisons: Sidak.

## 15 mm vs 20 mm chamber temperature

### Type III Tests of Fixed Effects<sup>a</sup>

Source	Numerator df	Denominator df	F	Sig.
Colour	1	7	20.134	.003
Width	1	6	.148	.714

a. Dependent Variable: MaxTemp.

### Estimates of Covariance Parameters<sup>a</sup>

Parameter	Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Residual	9.93222	5.30899	1.871	.061	3.483855	28.316061
	3	7				
Intercept [subject Variance = BoxPair]	2.07526	4.85524	.427	.669	.021165	203.480041
	9	2				

a. Dependent Variable: MaxTemp.

# Winter temperature analyses

## 5-day mean 'maximum' temperature comparison

**Type III Tests of Fixed Effects<sup>a</sup>**

Source	Numerator df	Denominator df	F	Sig.
Design	3	8.056	217.970	.000
Chamber	3	288.000	49.047	.000
Design * Chamber	9	288.000	48.070	.000

a. Dependent Variable: MaxTempW.

**Estimates of Covariance Parameters<sup>a</sup>**

Parameter	Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Residual	.727522	.060627	12.000	.000	.617892	.856603
Intercept [subject = BoxPair] Variance	.054827	.055598	.986	.324	.007513	.400095
Intercept [subject = Member * BoxPair] Variance	.033459	.040433	.828	.408	.003133	.357384
Day Variance	3.953791	2.803791	1.410	.158	.984901	15.872108

a. Dependent Variable: MaxTempW.

## Design

**Pairwise Comparisons<sup>a</sup>**

Chamber	(I) Design	(J) Design	Mean Difference (I-J)	Std. Error	df	Sig. <sup>c</sup>	95% Confidence Interval for Difference <sup>c</sup>	
							Lower Bound	Upper Bound
1	black ply	white ply	7.412*	.299	37.496	.000	6.581	8.243
		black wc	5.459*	.342	34.443	.000	4.505	6.413
		white wc	7.900*	.342	34.443	.000	6.945	8.854
	white ply	black ply	-7.412*	.299	37.496	.000	-8.243	-6.581
		black wc	-1.953*	.342	34.443	.000	-2.907	-.999
		white wc	.488	.342	34.443	.656	-.467	1.442
	black wc	black ply	-5.459*	.342	34.443	.000	-6.413	-4.505
		white ply	1.953*	.342	34.443	.000	.999	2.907

		white wc	2.441*	.299	37.496	.000	1.610	3.271
	white wc	black ply	-7.900*	.342	34.443	.000	-8.854	-6.945
		white ply	-.488	.342	34.443	.656	-1.442	.467
		black wc	-2.441*	.299	37.496	.000	-3.271	-1.610
2	black ply	white ply	5.075*	.299	37.496	.000	4.244	5.906
		black wc	4.019*	.342	34.443	.000	3.065	4.973
		white wc	5.227*	.342	34.443	.000	4.273	6.182
	white ply	black ply	-5.075*	.299	37.496	.000	-5.906	-4.244
		black wc	-1.056*	.342	34.443	.024	-2.010	-.102
		white wc	.152	.342	34.443	.998	-.802	1.107
	black wc	black ply	-4.019*	.342	34.443	.000	-4.973	-3.065
		white ply	1.056*	.342	34.443	.024	.102	2.010
		white wc	1.208*	.299	37.496	.002	.377	2.039
	white wc	black ply	-5.227*	.342	34.443	.000	-6.182	-4.273
		white ply	-.152	.342	34.443	.998	-1.107	.802
		black wc	-1.208*	.299	37.496	.002	-2.039	-.377
3	black ply	white ply	2.687*	.299	37.496	.000	1.856	3.517
		black wc	1.110*	.342	34.443	.016	.156	2.064
		white wc	2.705*	.342	34.443	.000	1.750	3.659
	white ply	black ply	-2.687*	.299	37.496	.000	-3.517	-1.856
		black wc	-1.576*	.342	34.443	.000	-2.531	-.622
		white wc	.018	.342	34.443	1.000	-.936	.972
	black wc	black ply	-1.110*	.342	34.443	.016	-2.064	-.156
		white ply	1.576*	.342	34.443	.000	.622	2.531
		white wc	1.595*	.299	37.496	.000	.764	2.425
	white wc	black ply	-2.705*	.342	34.443	.000	-3.659	-1.750
		white ply	-.018	.342	34.443	1.000	-.972	.936
		black wc	-1.595*	.299	37.496	.000	-2.425	-.764
4	black ply	white ply	1.897*	.299	37.496	.000	1.066	2.727
		black wc	-.122	.342	34.443	1.000	-1.076	.833
		white wc	1.743*	.342	34.443	.000	.789	2.698
	white ply	black ply	-1.897*	.299	37.496	.000	-2.727	-1.066
		black wc	-2.018*	.342	34.443	.000	-2.972	-1.064
		white wc	-.153	.342	34.443	.998	-1.107	.801
	black wc	black ply	.122	.342	34.443	1.000	-.833	1.076
		white ply	2.018*	.342	34.443	.000	1.064	2.972
		white wc	1.865*	.299	37.496	.000	1.034	2.696
	white wc	black ply	-1.743*	.342	34.443	.000	-2.698	-.789
		white ply	.153	.342	34.443	.998	-.801	1.107
		black wc	-1.865*	.299	37.496	.000	-2.696	-1.034

Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

a. Dependent Variable: MaxTempW.

c. Adjustment for multiple comparisons: Sidak.

## Chamber

### Pairwise Comparisons<sup>a</sup>

Design	(I) Chamber	(J) Chamber	Mean Difference (I-J)	Std. Error	df	Sig. <sup>c</sup>	95% Confidence Interval for Difference <sup>c</sup>	
							Lower Bound	Upper Bound
black ply	1	2	2.498*	.270	288.000	.000	1.783	3.213
		3	5.011*	.270	288.000	.000	4.297	5.726
		4	5.698*	.270	288.000	.000	4.983	6.413
	2	1	-2.498*	.270	288.000	.000	-3.213	-1.783
		3	2.513*	.270	288.000	.000	1.799	3.228
		4	3.200*	.270	288.000	.000	2.485	3.915
	3	1	-5.011*	.270	288.000	.000	-5.726	-4.297
		2	-2.513*	.270	288.000	.000	-3.228	-1.799
		4	.687	.270	288.000	.067	-.028	1.401
	4	1	-5.698*	.270	288.000	.000	-6.413	-4.983
		2	-3.200*	.270	288.000	.000	-3.915	-2.485
		3	-.687	.270	288.000	.067	-1.401	.028
white ply	1	2	.161	.270	288.000	.992	-.554	.876
		3	.286	.270	288.000	.872	-.429	1.001
		4	.183	.270	288.000	.984	-.532	.897
	2	1	-.161	.270	288.000	.992	-.876	.554
		3	.125	.270	288.000	.998	-.590	.840
		4	.022	.270	288.000	1.000	-.693	.736
	3	1	-.286	.270	288.000	.872	-1.001	.429
		2	-.125	.270	288.000	.998	-.840	.590
		4	-.103	.270	288.000	.999	-.818	.611
	4	1	-.183	.270	288.000	.984	-.897	.532
		2	-.022	.270	288.000	1.000	-.736	.693
		3	.103	.270	288.000	.999	-.611	.818
black wc	1	2	1.058*	.270	288.000	.001	.344	1.773
		3	.663	.270	288.000	.085	-.052	1.377
		4	.117	.270	288.000	.999	-.597	.832
	2	1	-1.058*	.270	288.000	.001	-1.773	-.344
		3	-.396	.270	288.000	.605	-1.110	.319





## 5-day mean 'warmest day period' temperature

### Type III Tests of Fixed Effects<sup>a</sup>

Source	Numerator df	Denominator df	F	Sig.
Design	3	6.911	304.988	.000
Chamber	3	288.000	18.794	.000
Design * Chamber	9	288.000	27.497	.000

a. Dependent Variable: AftMeanTempW.

### Estimates of Covariance Parameters<sup>a</sup>

Parameter	Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Residual	.353420	.02945	12.000	.000	.300163	.416126
		2				
Intercept [subject = Variance BoxPair]	.051176	.03674	1.393	.164	.012530	.209018
		2				
Intercept [subject = Variance Member * BoxPair]	.005185	.01327	.390	.696	3.426815E-5	.784461
		8				
Day	4.525048	3.2035	1.412	.158	1.129792	18.123753
		97				

a. Dependent Variable: AftMeanTempW.

## Design

### Pairwise Comparisons<sup>a</sup>

Chamber	(I) Design	(J) Design	Mean Difference (I-J)	Std. Error	df	Sig. <sup>c</sup>	95% Confidence Interval for Difference <sup>c</sup>	
							Lower Bound	Upper Bound
1	black ply	white ply	4.673*	.195	59.450	.000	4.143	5.203
		black wc	2.925*	.252	23.572	.000	2.201	3.648
		white wc	4.797*	.252	23.572	.000	4.074	5.521
	white ply	black ply	-4.673*	.195	59.450	.000	-5.203	-4.143
		black wc	-1.748*	.252	23.572	.000	-2.472	-1.025
		white wc	.124	.252	23.572	.997	-.599	.848
	black wc	black ply	-2.925*	.252	23.572	.000	-3.648	-2.201
		white ply	1.748*	.252	23.572	.000	1.025	2.472
		white wc	1.873*	.195	59.450	.000	1.343	2.403
white wc	black ply	-4.797*	.252	23.572	.000	-5.521	-4.074	
	white ply	-.124	.252	23.572	.997	-.848	.599	

2	black ply	black wc	-1.873*	.195	59.450	.000	-2.403	-1.343
		white ply	3.210*	.195	59.450	.000	2.680	3.740
		black wc	2.320*	.252	23.572	.000	1.597	3.044
	white ply	white wc	3.362*	.252	23.572	.000	2.638	4.085
		black ply	-3.210*	.195	59.450	.000	-3.740	-2.680
		black wc	-.890*	.252	23.572	.010	-1.613	-.166
	black wc	white wc	.152	.252	23.572	.992	-.572	.875
		black ply	-2.320*	.252	23.572	.000	-3.044	-1.597
		white ply	.890*	.252	23.572	.010	.166	1.613
	white wc	white wc	1.041*	.195	59.450	.000	.511	1.571
		black ply	-3.362*	.252	23.572	.000	-4.085	-2.638
		white ply	-.152	.252	23.572	.992	-.875	.572
3	black ply	black wc	-1.041*	.195	59.450	.000	-1.571	-.511
		white ply	2.096*	.195	59.450	.000	1.566	2.626
		black wc	.936*	.252	23.572	.007	.212	1.659
	white ply	white wc	2.108*	.252	23.572	.000	1.385	2.832
		black ply	-2.096*	.195	59.450	.000	-2.626	-1.566
		black wc	-1.161*	.252	23.572	.001	-1.884	-.437
	black wc	white wc	.012	.252	23.572	1.000	-.712	.735
		black ply	-.936*	.252	23.572	.007	-1.659	-.212
		white ply	1.161*	.252	23.572	.001	.437	1.884
	white wc	white wc	1.173*	.195	59.450	.000	.643	1.703
		black ply	-2.108*	.252	23.572	.000	-2.832	-1.385
		white ply	-.012	.252	23.572	1.000	-.735	.712
4	black ply	black wc	-1.173*	.195	59.450	.000	-1.703	-.643
		white ply	1.550*	.195	59.450	.000	1.020	2.080
		black wc	.157	.252	23.572	.991	-.567	.880
	white ply	white wc	1.578*	.252	23.572	.000	.854	2.301
		black ply	-1.550*	.195	59.450	.000	-2.080	-1.020
		black wc	-1.393*	.252	23.572	.000	-2.117	-.670
	black wc	white wc	.028	.252	23.572	1.000	-.695	.752
		black ply	-.157	.252	23.572	.991	-.880	.567
		white ply	1.393*	.252	23.572	.000	.670	2.117
	white wc	white wc	1.421*	.195	59.450	.000	.891	1.951
		black ply	-1.578*	.252	23.572	.000	-2.301	-.854
		white ply	-.028	.252	23.572	1.000	-.752	.695
		black wc	-1.421*	.195	59.450	.000	-1.951	-.891

Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

a. Dependent Variable: AftMeanTempW.

c. Adjustment for multiple comparisons: Sidak.

## Chamber

### Pairwise Comparisons<sup>a</sup>

Design	(I) Chamber	(J) Chamber	Mean Difference (I-J)	Std. Error	df	Sig. <sup>c</sup>	95% Confidence Interval for Difference <sup>c</sup>	
							Lower Bound	Upper Bound
black ply	1	2	1.269 <sup>*</sup>	.188	288.000	.000	.771	1.767
		3	2.453 <sup>*</sup>	.188	288.000	.000	1.955	2.951
		4	2.857 <sup>*</sup>	.188	288.000	.000	2.358	3.355
	2	1	-1.269 <sup>*</sup>	.188	288.000	.000	-1.767	-.771
		3	1.184 <sup>*</sup>	.188	288.000	.000	.686	1.682
		4	1.587 <sup>*</sup>	.188	288.000	.000	1.089	2.086
	3	1	-2.453 <sup>*</sup>	.188	288.000	.000	-2.951	-1.955
		2	-1.184 <sup>*</sup>	.188	288.000	.000	-1.682	-.686
		4	.404	.188	288.000	.180	-.094	.902
	4	1	-2.857 <sup>*</sup>	.188	288.000	.000	-3.355	-2.358
		2	-1.587 <sup>*</sup>	.188	288.000	.000	-2.086	-1.089
		3	-.404	.188	288.000	.180	-.902	.094
white ply	1	2	-.194	.188	288.000	.885	-.692	.304
		3	-.124	.188	288.000	.986	-.622	.374
		4	-.267	.188	288.000	.642	-.765	.231
	2	1	.194	.188	288.000	.885	-.304	.692
		3	.070	.188	288.000	.999	-.428	.568
		4	-.073	.188	288.000	.999	-.571	.425
	3	1	.124	.188	288.000	.986	-.374	.622
		2	-.070	.188	288.000	.999	-.568	.428
		4	-.143	.188	288.000	.972	-.641	.355
	4	1	.267	.188	288.000	.642	-.231	.765
		2	.073	.188	288.000	.999	-.425	.571
		3	.143	.188	288.000	.972	-.355	.641
black wc	1	2	.665 <sup>*</sup>	.188	288.000	.003	.167	1.163
		3	.463	.188	288.000	.083	-.035	.962
		4	.088	.188	288.000	.998	-.410	.586
	2	1	-.665 <sup>*</sup>	.188	288.000	.003	-1.163	-.167
		3	-.201	.188	288.000	.867	-.699	.297
		4	-.576 <sup>*</sup>	.188	288.000	.014	-1.074	-.078
	3	1	-.463	.188	288.000	.083	-.962	.035
		2	.201	.188	288.000	.867	-.297	.699



## Maximum temperature comparison on warmest winter day

### Type III Tests of Fixed Effects<sup>a</sup>

Source	Numerator df	Denominator df	F	Sig.
Design	3	12.000	27.337	.000
Chamber	3	36.000	16.970	.000
Design * Chamber	9	36.000	20.492	.000

a. Dependent Variable: hot winter.

### Estimates of Covariance Parameters<sup>a</sup>

Parameter	Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Residual	.138495	.032644	4.243	.000	.087258	.219819
Intercept [subject = Variance BoxPair]	.000000 <sup>b</sup>	.000000	.	.	.	.
Intercept [subject = Variance Member * BoxPair]	.217501	.103252	2.106	.035	.085778	.551500

a. Dependent Variable: hot winter.

b. This covariance parameter is redundant. The test statistic and confidence interval cannot be computed.

## Design

### Pairwise Comparisons<sup>a</sup>

Chamber (I)	Design (J)	Design (I-J)	Mean Difference	Std. Error	df	Sig. <sup>c</sup>	95% Confidence Interval for Difference <sup>c</sup>	
							Lower Bound	Upper Bound
1	black ply	white ply	4.733*	.422	22.643	.000	3.517	5.949
		black wc	3.108*	.422	22.643	.000	1.892	4.323
		white wc	4.873*	.422	22.643	.000	3.657	6.088
	white ply	black ply	-4.733*	.422	22.643	.000	-5.949	-3.517
		black wc	-1.626*	.422	22.643	.005	-2.841	-.410
		white wc	.140	.422	22.643	1.000	-1.076	1.355
	black wc	black ply	-3.108*	.422	22.643	.000	-4.323	-1.892
		white ply	1.626*	.422	22.643	.005	.410	2.841
		white wc	1.765*	.422	22.643	.002	.549	2.981
white wc	black ply	-4.873*	.422	22.643	.000	-6.088	-3.657	

		white ply	- .140	.422	22.643	1.000	-1.355	1.076
		black wc	-1.765*	.422	22.643	.002	-2.981	-.549
2	black ply	white ply	3.750*	.422	22.643	.000	2.534	4.966
		black wc	2.468*	.422	22.643	.000	1.252	3.684
		white wc	3.325*	.422	22.643	.000	2.110	4.541
	white ply	black ply	-3.750*	.422	22.643	.000	-4.966	-2.534
		black wc	-1.282*	.422	22.643	.035	-2.498	-.066
		white wc	-.425	.422	22.643	.905	-1.640	.791
	black wc	black ply	-2.468*	.422	22.643	.000	-3.684	-1.252
		white ply	1.282*	.422	22.643	.035	.066	2.498
		white wc	.857	.422	22.643	.284	-.358	2.073
	white wc	black ply	-3.325*	.422	22.643	.000	-4.541	-2.110
		white ply	.425	.422	22.643	.905	-.791	1.640
		black wc	-.857	.422	22.643	.284	-2.073	.358
3	black ply	white ply	1.763*	.422	22.643	.002	.547	2.978
		black wc	.610	.422	22.643	.653	-.605	1.826
		white wc	1.229*	.422	22.643	.047	.013	2.445
	white ply	black ply	-1.763*	.422	22.643	.002	-2.978	-.547
		black wc	-1.152	.422	22.643	.070	-2.368	.063
		white wc	-.533	.422	22.643	.773	-1.749	.682
	black wc	black ply	-.610	.422	22.643	.653	-1.826	.605
		white ply	1.152	.422	22.643	.070	-.063	2.368
		white wc	.619	.422	22.643	.639	-.597	1.834
	white wc	black ply	-1.229*	.422	22.643	.047	-2.445	-.013
		white ply	.533	.422	22.643	.773	-.682	1.749
		black wc	-.619	.422	22.643	.639	-1.834	.597
4	black ply	white ply	1.220*	.422	22.643	.049	.005	2.436
		black wc	-.022	.422	22.643	1.000	-1.238	1.193
		white wc	1.190	.422	22.643	.057	-.026	2.406
	white ply	black ply	-1.220*	.422	22.643	.049	-2.436	-.005
		black wc	-1.243*	.422	22.643	.043	-2.458	-.027
		white wc	-.030	.422	22.643	1.000	-1.246	1.185
	black wc	black ply	.022	.422	22.643	1.000	-1.193	1.238
		white ply	1.243*	.422	22.643	.043	.027	2.458
		white wc	1.213	.422	22.643	.051	-.003	2.428
	white wc	black ply	-1.190	.422	22.643	.057	-2.406	.026
		white ply	.030	.422	22.643	1.000	-1.185	1.246
		black wc	-1.213	.422	22.643	.051	-2.428	.003

Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

a. Dependent Variable: hot winter.

c. Adjustment for multiple comparisons: Sidak.

## Chamber

### Pairwise Comparisons<sup>a</sup>

Design	(I) Chamber	(J) Chamber	Mean Difference (I-J)	Std. Error	df	Sig. <sup>c</sup>	95% Confidence Interval for Difference <sup>c</sup>	
							Lower Bound	Upper Bound
black ply	1	2	1.298*	.263	36.000	.000	.566	2.030
		3	3.160*	.263	36.000	.000	2.428	3.893
		4	3.298*	.263	36.000	.000	2.566	4.030
	2	1	-1.298*	.263	36.000	.000	-2.030	-.566
		3	1.862*	.263	36.000	.000	1.130	2.595
		4	2.000*	.263	36.000	.000	1.268	2.732
	3	1	-3.160*	.263	36.000	.000	-3.893	-2.428
		2	-1.862*	.263	36.000	.000	-2.595	-1.130
		4	.138	.263	36.000	.996	-.595	.870
	4	1	-3.298*	.263	36.000	.000	-4.030	-2.566
		2	-2.000*	.263	36.000	.000	-2.732	-1.268
		3	-.138	.263	36.000	.996	-.870	.595
white ply	1	2	.315	.263	36.000	.806	-.417	1.047
		3	.190	.263	36.000	.979	-.542	.922
		4	-.215	.263	36.000	.962	-.947	.518
	2	1	-.315	.263	36.000	.806	-1.047	.417
		3	-.125	.263	36.000	.998	-.857	.607
		4	-.530	.263	36.000	.272	-1.262	.203
	3	1	-.190	.263	36.000	.979	-.922	.542
		2	.125	.263	36.000	.998	-.607	.857
		4	-.405	.263	36.000	.575	-1.137	.328
	4	1	.215	.263	36.000	.962	-.518	.947
		2	.530	.263	36.000	.272	-.203	1.262
		3	.405	.263	36.000	.575	-.328	1.137
black wc	1	2	.659	.263	36.000	.098	-.074	1.391
		3	.663	.263	36.000	.094	-.069	1.396
		4	.168	.263	36.000	.989	-.564	.900
	2	1	-.659	.263	36.000	.098	-1.391	.074
		3	.005	.263	36.000	1.000	-.728	.737
		4	-.490	.263	36.000	.355	-1.223	.242
	3	1	-.663	.263	36.000	.094	-1.396	.069
		2	-.005	.263	36.000	1.000	-.737	.728





## Maximum temperature comparison on coolest winter day

### Estimates of Covariance Parameters<sup>a</sup>

Parameter	Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Residual	.466877	.110044	4.243	.000	.294153	.741025
Intercept [subject = Variance BoxPair]	.000000 <sup>b</sup>	.000000	.	.	.	.
Intercept [subject = Variance Member * BoxPair]	.050195	.073487	.683	.495	.002848	.884774

a. Dependent Variable: coolwinter.

b. This covariance parameter is redundant. The test statistic and confidence interval cannot be computed.

### Type III Tests of Fixed Effects<sup>a</sup>

Source	Numerator df	Denominator df	F	Sig.
Design	3	12.000	116.599	.000
Chamber	3	36	20.051	.000
Design * Chamber	9	36	18.868	.000

a. Dependent Variable: coolwinter.

## Design

### Pairwise Comparisons<sup>a</sup>

Chamber	(I) Design	(J) Design	Mean Difference (I-J)	Std. Error	df	Sig. <sup>c</sup>	95% Confidence Interval for Difference <sup>c</sup>	
							Lower Bound	Upper Bound
1	black ply	white ply	8.117*	.508	46.680	.000	6.721	9.514
		black wc	6.113*	.508	46.680	.000	4.716	7.510
		white wc	8.503*	.508	46.680	.000	7.107	9.900
	white ply	black ply	-8.117*	.508	46.680	.000	-9.514	-6.721
		black wc	-2.005*	.508	46.680	.002	-3.402	-.608
		white wc	.386	.508	46.680	.973	-1.011	1.783
	black wc	black ply	-6.113*	.508	46.680	.000	-7.510	-4.716
		white ply	2.005*	.508	46.680	.002	.608	3.402
		white wc	2.391*	.508	46.680	.000	.994	3.788

	white wc	black ply	-8.503*	.508	46.680	.000	-9.900	-7.107
		white ply	-.386	.508	46.680	.973	-1.783	1.011
		black wc	-2.391*	.508	46.680	.000	-3.788	-.994
2	black ply	white ply	5.625*	.508	46.680	.000	4.228	7.022
		black wc	4.973*	.508	46.680	.000	3.576	6.369
		white wc	5.955*	.508	46.680	.000	4.558	7.352
	white ply	black ply	-5.625*	.508	46.680	.000	-7.022	-4.228
		black wc	-.652	.508	46.680	.749	-2.049	.744
		white wc	.330	.508	46.680	.988	-1.067	1.727
	black wc	black ply	-4.973*	.508	46.680	.000	-6.369	-3.576
		white ply	.652	.508	46.680	.749	-.744	2.049
		white wc	.982	.508	46.680	.308	-.414	2.379
	white wc	black ply	-5.955*	.508	46.680	.000	-7.352	-4.558
		white ply	-.330	.508	46.680	.988	-1.727	1.067
		black wc	-.982	.508	46.680	.308	-2.379	.414
3	black ply	white ply	2.763*	.508	46.680	.000	1.366	4.159
		black wc	1.863*	.508	46.680	.004	.466	3.259
		white wc	2.983*	.508	46.680	.000	1.586	4.379
	white ply	black ply	-2.763*	.508	46.680	.000	-4.159	-1.366
		black wc	-.900	.508	46.680	.406	-2.297	.497
		white wc	.220	.508	46.680	.999	-1.177	1.617
	black wc	black ply	-1.863*	.508	46.680	.004	-3.259	-.466
		white ply	.900	.508	46.680	.406	-.497	2.297
		white wc	1.120	.508	46.680	.180	-.277	2.517
	white wc	black ply	-2.983*	.508	46.680	.000	-4.379	-1.586
		white ply	-.220	.508	46.680	.999	-1.617	1.177
		black wc	-1.120	.508	46.680	.180	-2.517	.277
4	black ply	white ply	1.598*	.508	46.680	.017	.201	2.994
		black wc	-.020	.508	46.680	1.000	-1.417	1.377
		white wc	1.822*	.508	46.680	.005	.426	3.219
	white ply	black ply	-1.598*	.508	46.680	.017	-2.994	-.201
		black wc	-1.617*	.508	46.680	.016	-3.014	-.221
		white wc	.225	.508	46.680	.998	-1.172	1.622
	black wc	black ply	.020	.508	46.680	1.000	-1.377	1.417
		white ply	1.617*	.508	46.680	.016	.221	3.014
		white wc	1.842*	.508	46.680	.004	.446	3.239
	white wc	black ply	-1.822*	.508	46.680	.005	-3.219	-.426
		white ply	-.225	.508	46.680	.998	-1.622	1.172
		black wc	-1.842*	.508	46.680	.004	-3.239	-.446

Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

a. Dependent Variable: coolwinter.

c. Adjustment for multiple comparisons: Sidak.

## Chamber

### Pairwise Comparisons<sup>a</sup>

Design	(I) Chamber	(J) Chamber	Mean Difference (I-J)	Std. Error	df	Sig. <sup>c</sup>	95% Confidence Interval for Difference <sup>c</sup>	
							Lower Bound	Upper Bound
black ply	1	2	2.423*	.483	36	.000	1.078	3.768
		3	5.410*	.483	36	.000	4.065	6.755
		4	6.423*	.483	36	.000	5.078	7.768
	2	1	-2.423*	.483	36	.000	-3.768	-1.078
		3	2.988*	.483	36	.000	1.643	4.332
		4	4.000*	.483	36	.000	2.655	5.345
	3	1	-5.410*	.483	36	.000	-6.755	-4.065
		2	-2.988*	.483	36	.000	-4.332	-1.643
		4	1.012	.483	36	.233	-.332	2.357
	4	1	-6.423*	.483	36	.000	-7.768	-5.078
		2	-4.000*	.483	36	.000	-5.345	-2.655
		3	-1.012	.483	36	.233	-2.357	.332
white ply	1	2	-.070	.483	36	1.000	-1.415	1.275
		3	.055	.483	36	1.000	-1.290	1.400
		4	-.097	.483	36	1.000	-1.442	1.248
	2	1	.070	.483	36	1.000	-1.275	1.415
		3	.125	.483	36	1.000	-1.220	1.470
		4	-.028	.483	36	1.000	-1.372	1.317
	3	1	-.055	.483	36	1.000	-1.400	1.290
		2	-.125	.483	36	1.000	-1.470	1.220
		4	-.153	.483	36	1.000	-1.497	1.192
	4	1	.097	.483	36	1.000	-1.248	1.442
		2	.028	.483	36	1.000	-1.317	1.372
		3	.153	.483	36	1.000	-1.192	1.497
black wc	1	2	1.283	.483	36	.068	-.062	2.627
		3	1.160	.483	36	.123	-.185	2.505
		4	.290	.483	36	.992	-1.055	1.635
	2	1	-1.283	.483	36	.068	-2.627	.062
		3	-.123	.483	36	1.000	-1.467	1.222
		4	-.992	.483	36	.252	-2.337	.352

3	1	-1.160	.483	36	.123	-2.505	.185	
	2	.123	.483	36	1.000	-1.222	1.467	
	4	-.870	.483	36	.394	-2.215	.475	
4	1	-.290	.483	36	.992	-1.635	1.055	
	2	.992	.483	36	.252	-.352	2.337	
	3	.870	.483	36	.394	-.475	2.215	
white wc	1	2	-.126	.483	36	1.000	-1.471	1.219
		3	-.111	.483	36	1.000	-1.456	1.234
		4	-.258	.483	36	.996	-1.603	1.087
	2	1	.126	.483	36	1.000	-1.219	1.471
		3	.015	.483	36	1.000	-1.330	1.360
		4	-.133	.483	36	1.000	-1.477	1.212
	3	1	.111	.483	36	1.000	-1.234	1.456
		2	-.015	.483	36	1.000	-1.360	1.330
		4	-.148	.483	36	1.000	-1.492	1.197
	4	1	.258	.483	36	.996	-1.087	1.603
		2	.133	.483	36	1.000	-1.212	1.477
		3	.148	.483	36	1.000	-1.197	1.492

Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

a. Dependent Variable: coolwinter.

c. Adjustment for multiple comparisons: Sidak.

# Relative humidity

## 5-day period – summer

### Type III Tests of Fixed Effects<sup>a</sup>

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	4.108	327.264	.000
DesignH1	3	10.208	150.831	.000

a. Dependent Variable: AftDay70RH1.

### Estimates of Covariance Parameters<sup>a</sup>

Parameter	Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Residual	.000390	6.328119E-5	6.164	.000	.000284	.000536
Intercept [subject = BoxPairH1] Variance	.000115	7.947685E-5	1.447	.148	2.967818E-5	.000446
Intercept [subject = MemberH1 * BoxPairH1] Variance	1.320124E-7	4.107369E-5	.003	.997	1.914179E-272	9.104310E+257
DayH1 Variance	.004490	.003188	1.408	.159	.001116	.018059

a. Dependent Variable: AftDay70RH1.

## Design

### Pairwise Comparisons<sup>a</sup>

(I) Design	(J) Design	Mean Difference (I-J)	Std. Error	df	Sig. <sup>c</sup>	95% Confidence Interval for Difference <sup>c</sup>	
						Lower Bound	Upper Bound
humidity data 1 black ply	humidity data 1 white ply	-.093*	.005	8	.000	-.111	-.075
	humidity data 1 black wc	-.059*	.009	11.813	.000	-.087	-.030
	humidity data 1 white wc	-.119*	.009	11.813	.000	-.147	-.090
humidity data 1 white ply	humidity data 1 black ply	.093*	.005	8	.000	.075	.111
	humidity data 1 black wc	.034*	.009	11.813	.014	.006	.063
	humidity data 1 white wc	-.026	.009	11.813	.086	-.054	.003
humidity data 1 black wc	humidity data 1 black ply	.059*	.009	11.813	.000	.030	.087
	humidity data 1 white ply	-.034*	.009	11.813	.014	-.063	-.006
	humidity data 1 white wc	-.060*	.006	8	.000	-.082	-.038
humidity data 1 white wc	humidity data 1 black ply	.119*	.009	11.813	.000	.090	.147
	humidity data 1 white ply	.026	.009	11.813	.086	-.003	.054

black wc	.060*	.006	8	.000	.038	.082
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Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

a. Dependent Variable: AftDay70RH1.

c. Adjustment for multiple comparisons: Sidak.

## 5-day period - winter

### Type III Tests of Fixed Effects<sup>a</sup>

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	5.328	1361.582	.000
DesignH2	3	12.000	50.782	.000

a. Dependent Variable: AftDay70RH2.

### Estimates of Covariance Parameters<sup>a</sup>

Parameter	Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Residual	.002660	.000486	5.477	.000	.001860	.003804
Intercept [subject = Variance BoxPairH2]	.000000 <sup>b</sup>	.000000	.	.	.	.
Intercept [subject = Variance MemberH2 * BoxPairH2]	.001039	.000649	1.602	.109	.000306	.003533
DayH2 Variance	.001785	.001380	1.293	.196	.000392	.008123

a. Dependent Variable: AftDay70RH2.

b. This covariance parameter is redundant. The test statistic and confidence interval cannot be computed.

## Design

### Pairwise Comparisons<sup>a</sup>

(I) Design	(J) Design	Mean Difference (I-J)	Std. Error	df	Sig. <sup>c</sup>	95% Confidence Interval for Difference <sup>c</sup>	
						Lower Bound	Upper Bound
humidity data 2	white ply	-.289*	.028	12.000	.000	-.377	-.201
	black wc	-.177*	.028	12.000	.000	-.265	-.089
	white wc	-.307*	.028	12.000	.000	-.395	-.219
white ply	black ply	.289*	.028	12.000	.000	.201	.377
	black wc	.112*	.028	12.000	.010	.024	.200
	white wc	-.018	.028	12.000	.989	-.106	.070
black wc	black ply	.177*	.028	12.000	.000	.089	.265
	white ply	-.112*	.028	12.000	.010	-.200	-.024
	white wc	-.130*	.028	12.000	.003	-.218	-.042
white wc	black ply	.307*	.028	12.000	.000	.219	.395
	white ply	.018	.028	12.000	.989	-.070	.106



black wc	.130*	.028	12.000	.003	.042	.218
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Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

a. Dependent Variable: AftDay70RH2.

c. Adjustment for multiple comparisons: Sidak.