Enclosure 5

Calculation No. WEP-109-003.12, Revision 1,
Generation of a Heat Load vs. Fuel Temperature Curve
(1 paper copy)

CLIENT: Wisconsin Electric Power
CLIENT NO.: WEP-101
SNC NO.: WEP-109-003.12

DESIGN CALCULATION

GENERATION OF A HEAT LOAD VS. FUEL TEMPERATURE CURVE

PREPARED BY

SIERRA NUCLEAR CORPORATION

WEP-CIC9.003.12

REVISION CONTROL SHEET

Revision	Reason	Affected Pages	Preparer	Checker	Project Eng.
0	Initial Issue	All	BAC	MPC	BAC
1	Complete editorial revision	All (1-2) Att. 1-6	BAC	[illegible]	BAC

SIGNATURES

Name/Title	Initials	Date
Boris Chechelnitsky	BAC	1/15/90
Mike Carr	MPC	1/15/90
[signature]	[illegible]	5/30/95

1.0 INTRODUCTION

The purpose of this package is to generate a heat generation vs. fuel temperature curve for the VSC-24 system. Such a curve will be used in conjunction with Ref. 5 for the site-specific calculations to estimate whether a specific fuel assembly (of certain type, burnup, age, etc.) can be stored in VSC-24. The full methodology for assembly evaluation is presented in Figure 2.1-1 of the SAR [Ref. 1].

2.0 DESIGN INPUT AND ASSUMPTIONS

Six points were used to plot a curve. Power level was chosen at 1 kWt/assy, 1.5 kWt/assy, 0.9 kWt/assy, 0.75 kWt/assy, 0.5 kWt/assy, 0.25 kWt/assy.

It was assumed that all assemblies stored in the cask have the same heat generation rate. This assumption is conservative because the analysis will be based on a hottest fuel assembly to be stored in the concrete cask. Since in reality this assembly will be surrounded by cooler ones, the cladding temperature will be much lower than that obtained in this analysis. It is possible to remove this conservatism by analyzing the casks on a case-by-case basis using the specific assembly information.

3.0 CALCULATIONS

At each heat generation rate the air gap temperatures were first found the same way it was described in WEP 109.003.011 calc. package [Ref. 2]. After that, two ANSYS Version 4.3A-2 runs were performed to calculate corresponding fuel temperature (VCC axial, MSB hot slice models). This was done in the same manner as in WEP 109.003.4 and 5 calc. packages [Ref. 3, 4]. Finally, the curve was generated using LOTUS 1-2-3 spreadsheet. The curve is presented in Figure 1. Air temperature and specific ANSYS input/outputs are shown in Attachments 1 through 6. See references 3 and 4 for the detail model information.

4.0 CONCLUSIONS

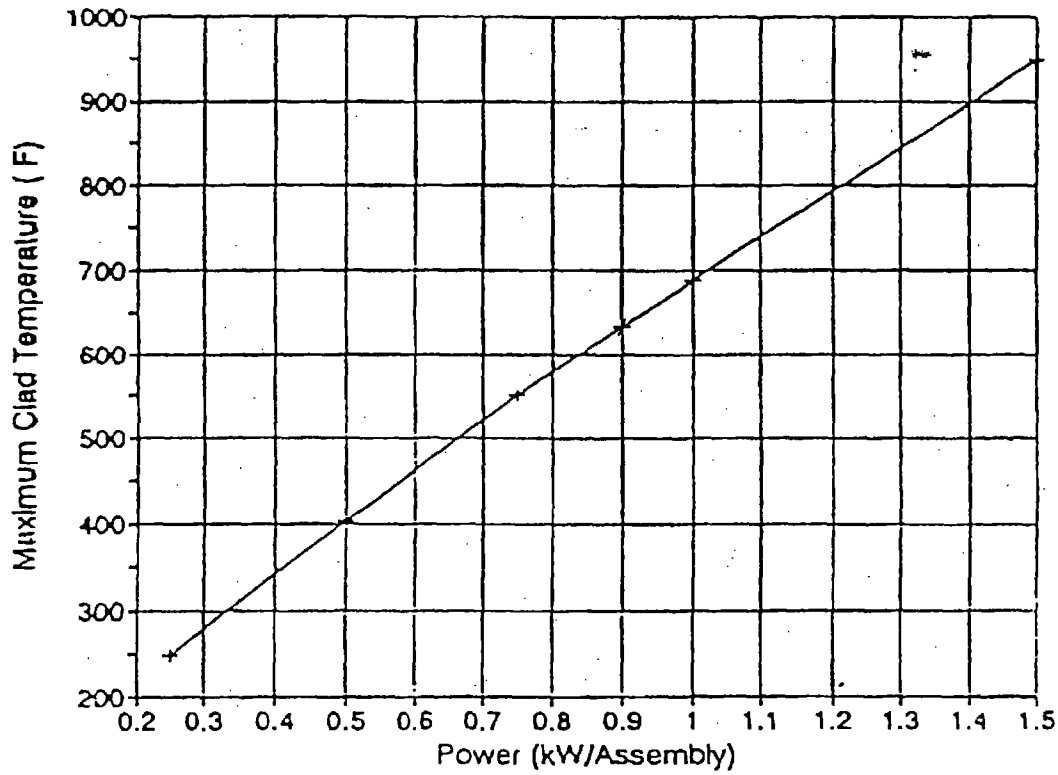
None. The results of this analysis may be used in site-specific calculations.

5.0 REFERENCES

1. VSC-24 Safety Analysis Report, Rev. 0, Sierra Nuclear Corporation
2. Calc WEP 109.003.011, Rev. 4, VSC-24 Airflow Analysis
3. Calc WEP 109.003.004, Rev. 0, VCC Thermal-Hydraulic Analysis
4. Calc WEP 109.003.005, Rev. 3, MSB Thermal-Hydraulic Analysis
5. Calc WEP 109.003.010, Rev. 1, Temperature Limit for Dry Storage of Various Fuel

Figure 1

POWER LEVEL TO PRODUCE A SPECIFIC MAXIMUM FUEL CLAD TEMPERATURE



Client/Project: WEP - 101	Revision	Prepared	Date	Checked	Date	Sheet
Subject: Generation of a Heat Load vs. Fuel Temperature Curve for TSAR	1	BAC	5/25/95	QD	5/30/95	2
Calculation Number: WEP-109-003.12						of 2

Table 12. 75°F input: heat load, el. convections constant temperatures

LIST ELEM HEAT GENERATIONS FOR ALL SELECTED ELEMENTS

ELEMENT	HEAT GENERATIONS
37	326.100000
44	403.400000
51	393.300000
58	369.800000
65	258.900000

1 cwt

VCC

LIST ELEMENT CONVECTIONS FOR ALL SELECTED ELEMENTS

ELEM	FACE	VALUE(S)		FACE NODES			
17	3	2.00000000	75.0000000	43	36	52	59
24	3	2.00000000	75.0000000	59	52	68	75
31	3	2.00000000	75.0000000	75	68	84	91
38	3	2.00000000	86.9000000	91	84	100	107
45	3	2.00000000	104.300000	107	100	116	123
52	3	2.00000000	121.900000	123	116	132	139
59	3	2.00000000	144.000000	139	132	148	155
66	3	2.00000000	161.000000	155	148	164	171
73	3	2.00000000	164.000000	171	164	180	187
80	3	2.00000000	164.000000	187	180	479	486
19	5	2.00000000	75.0000000	37	44	60	53
26	5	2.00000000	75.0000000	53	60	76	69
33	5	2.00000000	75.0000000	69	76	92	85
40	5	2.00000000	86.9000000	85	92	108	101
47	5	2.00000000	104.300000	101	108	124	117
54	5	2.00000000	121.900000	117	124	140	133
61	5	2.00000000	144.000000	133	140	156	149
68	5	2.00000000	161.000000	149	156	172	165
75	5	2.00000000	164.000000	165	172	188	181
82	5	2.00000000	164.000000	181	188	204	197

ELEM	FACE	VALUE(S)		FACE NODES			
171	6	2.00000000	75.0000000	215	214	221	222
172	6	2.00000000	75.0000000	450	215	222	451
164	3	2.00000000	75.0000000	191	184	200	207
96	6	2.00000000	75.0000000	230	229	236	237
95	6	2.00000000	75.0000000	229	228	235	236
94	6	2.00000000	75.0000000	228	227	234	235
93	6	2.00000000	75.0000000	227	226	233	234
92	6	2.00000000	75.0000000	226	225	233	233
153	3	2.00000000	75.0000000	15	8	24	31
154	3	2.00000000	75.0000000	31	24	40	47
155	3	2.00000000	75.0000000	47	40	56	63
156	3	2.00000000	75.0000000	63	56	72	79
157	3	2.00000000	75.0000000	79	72	88	95
158	3	2.00000000	75.0000000	95	88	104	111
159	3	2.00000000	75.0000000	111	104	120	127
160	3	2.00000000	75.0000000	127	120	136	143
161	3	2.00000000	75.0000000	143	136	152	159
162	3	2.00000000	75.0000000	159	152	168	175
163	3	2.00000000	75.0000000	175	168	184	191
165	3	2.00000000	75.0000000	207	200	216	223

ELEM	FACE	VALUE(S)		FACE NODES			
173	3	2.00000000	75.0000000	475	471	216	223
173	6	2.00000000	75.0000000	216	450	451	223
179	3	2.00000000	164.000000	489	483	196	203
176	3	2.00000000	164.000000	486	479	483	489

Table 12 (cont-d)

LIST TEMPERATURES FOR ALL SELECTED NODES

NODE	LABEL	TEMPR	
144	TEMP	75.0000000	0.000000000E+00
241	TEMP	75.0000000	0.000000000E+00

Table 13. 15°F case results

PRINT NODAL TEMPERATURES

1 kWt
VCC

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
1	150.22445
2	144.69042
3	128.58333
4	127.91042
5	123.43108
6	120.06291
7	102.04475
8	80.485679
9	144.69043
10	128.58314
11	127.91024
12	123.43106
13	120.06296
14	102.04474

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
15	80.485679
17	168.27738
18	162.70519
19	152.44001
20	150.89722
21	142.95160
22	140.53941
23	103.92405
24	80.708138
25	162.70517
26	152.44041
27	150.89758
28	142.95163
29	140.53929

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
30	103.92408
31	80.708141
33	168.82362
34	162.64958
35	153.18270
36	152.40762
37	141.56458
38	139.98518
39	104.30502

Table 15 (cont-9)

40	80.857185
41	162.64945
42	153.18388
43	152.40906
44	141.56432

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
45	139.98479
46	104.30510
47	80.857189
49	174.01969
50	164.87624
51	156.34160
52	154.46252
53	140.16711
54	139.67072
55	104.41419
56	80.883284
57	164.87718
58	156.34933
59	154.46364

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
60	140.16690
61	139.67007
62	104.41433
63	80.883276
65	174.49720
66	164.77460
67	156.93110
68	157.62979
69	138.67567
70	138.85505
71	104.64583
72	80.924160
73	164.77496
74	156.94397

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
75	157.60110
76	138.67591
77	138.85357
78	104.64618
79	80.924129
81	497.36086

Table 13 (cont-d)

83	191.29033
84	190.51634
85	134.49749
86	134.61738
87	105.69151
88	81.282587
90	190.35171
91	189.68445

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
92	134.48357
93	134.60986
94	105.69330
95	81.282394
97	594.33788
99	239.33766
100	238.17454
101	148.12269
102	147.95064
103	112.05091
104	82.199705
106	238.16851
107	237.13360
108	148.08944

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
109	147.93172
110	112.05541
111	82.199387
113	637.05926
115	262.23500
116	260.97515
117	163.77507
118	163.49211
119	117.76841
120	83.565986
122	260.91587
123	259.80870
124	163.73737
125	163.47083

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
126	117.77347
127	83.565597
129	649.58785

Table 13 (cont-a)

131	274.77805
132	273.90641
133	181.25244
134	180.97890
135	126.47481
136	84.836556
138	273.57710
139	272.82863
140	181.21805
141	180.95940
142	126.47945

MSB SHELL

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
143	84.836181
144	75.000000
145	567.51845
147	269.94825
148	267.85019
149	186.76935
150	186.41647
151	128.25812
152	85.045619
154	268.69593
155	266.77750
156	186.73102
157	186.39481
158	128.26327

LINER

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
159	85.045247
161	490.80204
163	220.23333
164	218.20511
165	168.33019
166	168.05915
167	119.29032
168	83.569224
170	219.36356
171	217.48421
172	168.31220
173	168.04905
174	119.29272
175	83.569026

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP

Table 15 (cont-d)

177	141.86375
178	141.49328
179	145.52929
180	146.57612
181	143.42178
182	143.10317
183	106.15149
184	80.975730
185	141.48039
186	145.64104
187	146.64365
188	143.42925
189	143.10713
190	106.15055

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
191	80.975762
193	124.03437
194	125.95841
195	126.24062
196	125.01510
197	123.24616
198	123.49923
199	92.448921
200	78.250311
201	125.95841
202	126.24056
203	125.01563
204	123.24469
205	123.49868

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
206	92.449055
207	78.250314
209	93.597749
210	98.775536
211	114.62946
212	115.77222
213	116.43282
214	114.31725
215	79.754489
216	76.983694
217	98.775532
218	114.62948
219	115.77200
220	116.43319

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1

Table 15 (cont-d)

TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
221	114.31725
222	79.754488
223	76.983689
225	93.418856
226	98.714263
227	114.26506
228	115.42266
229	116.09042
230	114.31052
233	98.714265
234	114.26506
235	115.42256
236	116.09068
237	114.31061

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
241	75.000000
242	82.463095
243	82.463091
258	82.902881
259	82.902892
274	83.061366
275	83.061403
290	83.102474
291	83.102506
306	83.139817
307	83.139801
322	83.443116
323	83.442755
338	85.001221

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
339	85.000448
354	86.650224
355	86.649331
370	88.614429
371	88.613608
386	88.944003
387	88.943107
402	86.769389
403	86.768952
418	83.162440
419	83.162611
434	79.218561
435	79.218521
450	77.725280

1 KW/t
MSB

LIST ELEM HEAT GENERATIONS FOR ALL SELECTED ELEMENTS

ELEMENT	HEAT GENERATIONS
1	620.260000
14	620.260000
15	620.260000
18	620.260000
19	620.260000
22	620.260000
23	620.260000
27	620.260000
30	620.260000
31	620.260000
34	620.260000
35	620.260000
66	620.260000
67	620.260000
79	620.260000
300	620.260000
301	620.260000
302	620.260000
303	620.260000
304	620.260000
305	620.260000
306	620.260000
307	620.260000
308	620.260000
309	620.260000
310	620.260000
311	620.260000
312	620.260000
313	620.260000
314	620.260000
315	620.260000
316	620.260000
317	620.260000
318	620.260000
319	620.260000
320	620.260000
321	620.260000
322	620.260000
323	620.260000

LIST TEMPERATURES FOR ALL SELECTED NODES

1 kW+

MSB

NODE	LABEL	TEMPR	
176	TEMP	274.000000	0.000000000E+00
177	TEMP	274.000000	0.000000000E+00
178	TEMP	274.000000	0.000000000E+00
179	TEMP	274.000000	0.000000000E+00
180	TEMP	274.000000	0.000000000E+00
181	TEMP	274.000000	0.000000000E+00
188	TEMP	274.000000	0.000000000E+00
190	TEMP	274.000000	0.000000000E+00

PRINT NODAL TEMPERATURES

1kWt
MSB

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
1	678.43653
2	678.34043
3	668.08913
4	631.30719
5	630.86546
6	630.44764
7	582.10639
8	511.20188
9	510.52084
10	509.92744
11	455.92324
12	384.67255
13	381.05804
15	678.33617

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
16	668.15929
17	631.19279
18	630.85735
19	630.53426
20	582.16776
21	511.00758
22	510.47659
23	510.03454
24	455.95681
25	384.53633
26	384.38254
29	682.78914
30	616.50249
31	616.53521

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
32	616.71239
33	585.53761
34	481.32785
35	481.41344
36	481.65086
37	447.16988
38	341.94504
39	341.73084
43	574.21434

44	573.94477
45	573.43018
46	509.34463
47	416.85667
48	416.37864

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
49	415.64307
50	339.81458
51	302.05922
52	302.15342
57	573.42683
58	572.90722
59	509.40402
60	416.59522
61	412.85678
62	415.04918
63	339.75500
64	301.68146
65	299.13210
71	572.62172

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
72	509.58954
73	415.94927
74	415.32840
75	411.35249
76	340.01735
77	297.26456
85	472.63751
86	345.42463
87	345.29471
88	344.85543
89	312.08523
99	315.08075
100	314.90231
101	313.21790

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
102	280.22486
113	314.46664
114	311.92466
115	279.04679
127	311.92466
170	275.01000

171	274.43781
172	274.49832
173	276.74954
174	274.99652
175	275.15569
176	274.00000
177	274.00000
178	274.00000

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
179	274.00000
180	274.00000
181	274.00000
182	275.22145
184	274.68805
188	274.00000
190	274.00000
200	687.79684
201	685.39359
202	661.99726
203	616.84456
204	596.32363
205	552.70639
206	486.66087

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
207	464.86233
208	420.46763
211	635.94263
212	583.95257
213	559.41417
214	511.38011
215	434.12575
216	411.71060
217	370.64499
221	529.35881
222	500.71698
223	448.87282
232	382.48364
250	659.48854

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
251	612.62175
252	544.45622
253	474.27906

254	408.00629
255	425.34830

MAXIMUMS	
NODE	200
VALUE	687.79684

1.5 kW+
VCC

LIST ELEM HEAT GENERATIONS FOR ALL SELECTED ELEMENTS

ELEMENT	HEAT GENERATIONS
37	489.100000
44	605.100000
51	590.000000
58	554.700000
65	388.300000

LIST ELEMENT CONVECTIONS FOR ALL SELECTED ELEMENTS

ELEM	FACE	VALUE(S)		FACE NODES			
17	3	2.00000000	75.0000000	43	36	52	59
24	3	2.00000000	75.0000000	59	52	68	75
31	3	2.00000000	75.0000000	75	68	84	91
38	3	2.00000000	91.1000000	91	84	100	107
45	3	2.00000000	114.000000	107	100	116	123
52	3	2.00000000	137.500000	123	116	132	139
59	3	2.00000000	166.900000	139	132	148	155
66	3	2.00000000	189.500000	155	148	164	171
73	3	2.00000000	193.500000	171	164	180	187
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26	5	2.00000000	75.0000000	53	60	76	69
33	5	2.00000000	75.0000000	69	76	92	85
40	5	2.00000000	91.1000000	85	92	108	101
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68	5	2.00000000	189.500000	149	156	172	165
75	5	2.00000000	193.500000	165	172	188	181
82	5	2.00000000	193.500000	181	188	204	197

ELEM	FACE	VALUE(S)		FACE NODES			
171	6	2.00000000	75.0000000	215	214	221	222
172	6	2.00000000	75.0000000	450	215	222	451
164	3	2.00000000	75.0000000	191	184	200	207
96	6	2.00000000	75.0000000	230	229	236	237
95	6	2.00000000	75.0000000	229	228	235	236
94	6	2.00000000	75.0000000	228	227	234	235
93	6	2.00000000	75.0000000	227	226	233	234
92	6	2.00000000	75.0000000	226	225	233	233
153	3	2.00000000	75.0000000	15	8	24	31
154	3	2.00000000	75.0000000	31	24	40	47
155	3	2.00000000	75.0000000	47	40	56	63
156	3	2.00000000	75.0000000	63	56	72	79
157	3	2.00000000	75.0000000	79	72	88	95
158	3	2.00000000	75.0000000	95	88	104	111
159	3	2.00000000	75.0000000	111	104	120	127
160	3	2.00000000	75.0000000	127	120	136	143
161	3	2.00000000	75.0000000	143	136	152	159
162	3	2.00000000	75.0000000	159	152	168	175
163	3	2.00000000	75.0000000	175	168	184	191
165	3	2.00000000	75.0000000	207	200	216	223

ELEM	FACE	VALUE(S)		FACE NODES			
173	3	2.00000000	75.0000000	475	471	216	223
173	6	2.00000000	75.0000000	216	450	451	223
179	3	2.00000000	193.500000	439	483	196	203
176	3	2.00000000	193.500000	486	479	483	489

LIST TEMPERATURES FOR ALL SELECTED NODES

NODE	LABEL	TEMPR	
144	TEMP	75.0000000	0.000000000E+00
241	TEMP	75.0000000	0.000000000E+00

1.5 kW+

PRINT NODAL TEMPERATURES

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
1	186.10230
2	178.10240
3	154.67200
4	153.64085
5	146.81954
6	141.83319
7	115.26525
8	83.208592
9	178.10241
10	154.67171
11	153.64059
12	146.81953
13	141.83329
14	115.26522

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
15	83.208592
17	212.59657
18	204.29068
19	189.33111
20	187.19252
21	176.20934
22	172.79955
23	118.53177
24	83.584286
25	204.29065
26	189.33171
27	187.19306
28	176.20936
29	172.79934

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
30	118.53182
31	83.584293
33	213.37711
34	204.23631
35	190.34535
36	189.25470
37	174.32169
38	172.16753
39	119.19438

40	83.831964
41	204.23612
42	190.34714
43	189.25687
44	174.32126

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
45	172.16681
46	119.19453
47	83.831970
49	221.03768
50	207.57237
51	194.66022
52	192.05025
53	172.42172
54	171.76352
55	119.38006
56	83.876901
57	207.57378
58	194.67190
59	192.05195

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
60	172.42136
61	171.76236
62	119.38032
63	83.876887
65	221.71783
66	207.44834
67	195.46332
68	196.41902
69	170.41171
70	170.69377
71	119.74957
72	83.946362
73	207.44884
74	195.48277

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
75	196.37569
76	170.41215
77	170.69112
78	119.75019
79	83.946307
81	698.33976

83	243.54327
84	242.38468
85	165.13133
86	165.28491
87	121.43624
88	84.550836
90	242.13828
91	241.14136

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
92	165.10634
93	165.27139
94	121.43947
95	84.550477
97	840.39397
99	307.65594
100	305.91161
101	188.61781
102	188.33456
103	132.14631
104	86.038810
106	305.91184
107	304.36542
108	188.55252

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
109	188.29744
110	132.15514
111	86.038189
113	901.62788
115	337.72104
116	335.81662
117	211.51998
118	211.07951
119	140.62802
120	88.075585
122	335.75346
123	334.08543
124	211.44544
125	211.03744

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
126	140.63803
127	88.074814
129	916.03236

131	353.08466
132	351.77491
133	235.18146
134	234.76059
135	152.48167
136	89.768252
138	351.29362
139	350.17319
140	235.11239
141	234.72145
142	152.49099

M&B SHELL

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
143	89.767503
144	75.000000
145	792.98376
147	344.88959
148	341.72354
149	239.24112
150	238.71354
151	153.14200
152	89.715818
154	343.02384
155	340.14113
156	239.16585
157	238.67101
158	153.15212

LINER

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
159	89.715090
161	678.28124
163	274.97876
164	271.95154
165	206.70857
166	206.32694
167	137.68063
168	87.203562
170	273.68011
171	270.88550
172	206.67665
173	206.30900
174	137.68490
175	87.203199

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE TEMP

177	165.17638
178	164.69571
179	170.07624
180	171.60329
181	168.29137
182	167.89044
183	118.00923
184	83.322686
185	164.67645
186	170.24315
187	171.70002
188	168.30417
189	167.89722
190	118.00761

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
191	83.322741
193	140.60146
194	143.23518
195	143.92149
196	142.27495
197	140.02055
198	140.38082
199	98.813630
200	79.481832
201	143.23518
202	143.92138
203	142.27576
204	140.01803
205	140.37987

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
206	98.813859
207	79.481837
209	100.53208
210	107.48199
211	128.29326
212	129.83878
213	130.70347
214	127.81943
215	81.461086
216	77.720040
217	107.48199
218	128.29328
219	129.83844
220	130.70411

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1

TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
221	127.81944
222	81.461085
223	77.720031
225	100.28898
226	107.39134
227	127.79979
228	129.36599
229	130.24251
230	127.80538
233	107.39134
234	127.79979
235	129.36583
236	130.24295
237	127.80553

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
241	75.000000
242	86.154236
243	86.154230
258	86.898649
259	86.898668
274	87.155918
275	87.155984
290	87.223140
291	87.223196
306	87.291968
307	87.291937
322	87.815762
323	87.815108
338	90.353946

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
339	90.352430
354	92.810079
355	92.808313
370	95.455264
371	95.453618
386	95.435604
387	95.433847
402	91.730849
403	91.730069
418	86.350302
419	86.350594
434	80.814357
435	80.814290
450	78.732679

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
451	78.732686
468	128.65322
469	82.185968
470	78.868678
471	77.661409
472	128.65320
473	82.185975
474	78.868683
475	77.661402
476	163.11653
477	166.11171
478	164.09584
479	162.99307
480	142.87761

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
481	142.22546
482	149.31341
483	150.97411
484	166.11848
485	164.04784
486	162.97480
487	142.22562
488	149.31236
489	150.96776

MAXIMUMS
NODE 129
VALUE 916.03236

1.5 kW/t

MSB

LIST ELEM HEAT GENERATIONS FOR ALL SELECTED ELEMENTS

ELEMENT	HEAT GENERATIONS
1	930.390000
14	930.390000
15	930.390000
18	930.390000
19	930.390000
22	930.390000
23	930.390000
27	930.390000
30	930.390000
31	930.390000
34	930.390000
35	930.390000
66	930.390000
67	930.390000
79	930.390000
300	930.390000
301	930.390000
302	930.390000
303	930.390000
304	930.390000
305	930.390000
306	930.390000
307	930.390000
308	930.390000
309	930.390000
310	930.390000
311	930.390000
312	930.390000
313	930.390000
314	930.390000
315	930.390000
316	930.390000
317	930.390000
318	930.390000
319	930.390000
320	930.390000
321	930.390000
322	930.390000
323	930.390000

LIST TEMPERATURES FOR ALL SELECTED NODES

NODE	LABEL	TEMPR	
176	TEMP	352.000000	0.000000000E+00
177	TEMP	352.000000	0.000000000E+00
178	TEMP	352.000000	0.000000000E+00
179	TEMP	352.000000	0.000000000E+00
180	TEMP	352.000000	0.000000000E+00
181	TEMP	352.000000	0.000000000E+00
188	TEMP	352.000000	0.000000000E+00
190	TEMP	352.000000	0.000000000E+00

1.5 kW+

MSB

PRINT NODAL TEMPERATURES

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
1	933.82105
2	933.67689
3	918.30032
4	863.13073
5	862.46830
6	861.84184
7	789.38301
8	683.13696
9	682.12032
10	681.23552
11	600.23921
12	491.87822
13	485.67478
15	933.67051

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
16	918.40555
17	862.95914
18	862.45609
19	861.97167
20	789.47496
21	682.84564
22	682.05238
23	681.39702
24	600.28863
25	491.68585
26	491.47294
29	940.34469
30	840.90606
31	840.95509

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
32	841.22076
33	794.37468
34	638.16340
35	638.28750
36	638.63185
37	590.70643
38	434.42929
39	434.09756
43	777.46910

44	777.06476
45	776.29272
46	680.05665
47	540.26950
48	539.57396

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
49	538.52960
50	435.27988
51	387.06575
52	387.19716
57	776.28859
58	775.51036
59	680.14201
60	539.89632
61	533.23866
62	537.71083
63	435.15913
64	386.60415
65	382.95899
71	775.08865

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
72	680.40863
73	538.98471
74	538.12328
75	532.62013
76	435.71581
77	380.95703
85	628.52403
86	441.97303
87	441.76116
88	441.44517
89	401.14463
99	403.30425
100	403.07294
101	400.95922

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
102	359.95521
113	402.52946
114	399.36458
115	358.44948
127	399.36458
170	353.69131

171	352.69284
172	352.64871
173	356.59958
174	353.26867
175	353.68557
176	352.00000
177	352.00000
178	352.00000

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
179	352.00000
180	352.00000
181	352.00000
182	353.17400
184	352.81081
188	352.00000
190	352.00000
200	947.86062
201	944.25414
202	909.15820
203	841.42540
204	810.64341
205	745.24984
206	647.08216

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
207	615.18649
208	548.98868
211	870.06745
212	792.02162
213	755.09815
214	682.89252
215	570.48848
216	540.00848
217	481.10261
221	710.84846
222	668.94800
223	592.05414
232	498.07967
250	905.39035

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
251	835.04750
252	732.71681
253	629.51270

254	533.37957
255	559.69686

MAXIMUMS

NODE	200
VALUE	947.86062

947.86

NORMAL FLOW PATH	D(H)	A	L	F	K	A**2	K/A**2	VEL	Re	% k/A**2
1. INLET SNOW SKIRT with screens		11.87000			0.77000	140.89690	0.00546	1.50218	0.000E+00	0.90
2. INLET SECTION DOWN OUTSIDE	0.66700	11.87000	3.00000	0.04000	0.17991	140.89690	0.00128	1.50218	5.391E+03	0.21
3. BEND & ENTER. SKID CHANNELS		4.68000			1.38000	21.90240	0.06301	3.81002	0.000E+00	10.43
4. SKID CHANNELS	1.08000	4.68000	5.11833	0.03000	0.14218	21.90240	0.00649	3.81002	2.214E+04	1.07
5. BEND INTO 12 IN SQ TUBE		4.00000			2.16000	16.00000	0.13500	4.45773	0.000E+00	22.35
6. BENDS AT CHANNEL AND INLET ASSY		4.00000			0.38700	16.00000	0.02419	4.45773	0.000E+00	4.00
7. STRAIGHT SECTION	1.00000	4.00000	1.33333	0.02600	0.03467	16.00000	0.00217	4.45773	2.399E+04	0.36
8. INLET ASSEMBLY AND BEND INTO ANN.		4.47200			1.38400	19.99878	0.06920	3.98723	0.000E+00	11.46
9. SUDDEN EXPANSION INTO ANNULUS		5.76000			0.05000	33.17760	0.00151	3.09564	0.000E+00	0.25
10. FLOW UP ANNULUS	0.66600	5.76000	14.16667	0.03300	0.70195	33.17760	0.02116	3.09564	1.109E+04	3.50
11. BEND&CNTRCT INTO 3" by 52" SLIT		4.33333			1.20000	18.77778	0.06391	4.11483	0.000E+00	10.58
12. Z - BEND		4.33333			2.78000	18.77778	0.14805	4.11483	0.000E+00	24.51
13. OUTLET STRAIGHT SECTION	1.89000	4.33333	2.66667	0.02600	0.03668	18.77778	0.00195	4.11483	4.185E+04	0.32
14. DISCHARGE with screens		4.33333			1.14000	18.77778	0.06071	4.11483	0.000E+00	10.05

1.5 kw/assembly

SUM K/A**2	0.60408	SUM K/A**2	0.60408
INLET TEMP	75.00000	INLET TEMP	100.00000
OUTLET TEMP	193.05000	OUTLET TEMP	204.50000
AVG TEMP	134.02500	AVG TEMP	152.25000
DRAFT HEIGHT	15.00000	DRAFT HEIGHT	15.00000
GUESS DT=	118.05000	GUESS DT=	104.50000
HEAT =	122832.00000	HEAT =	81888.00000
CP=	0.24100	CP=	0.24100
M=(HEAT BALENCE)	1.19929	M=(HEAT BAL)	0.90320
AVG DENSITY	0.06726	AVG DENSITY	0.05519
DP FLOW=	0.20059	DP FLOW=	0.13865
DP STACK=	0.20050	DP STACK=	0.14130
DT CALC	118.05000	DT CALC	104.50000
M=(DP FLOW)	1.19929	M=(DP FLOW)	0.90320
AVG Q/IN	853.00000	AVG Q/IN	568.66667

Air flow

$Q = 1.5\ kW$

100

X POSITION	f RELATIVE POWER	Q(x) POWER/IN	QX	DT TEMP	AIR TEMPERATURE	AIR TEMPERATURE	DT TEMP
0					75.00000	100.00000	
0-16	0.69000000	588.57000	9417.12000	9.08821	84.08821	112.06757	12.06757
16-32	1.08000000	921.24000	14739.84000	14.22503	98.31324	130.95595	18.88838
32-48	1.20000000	1023.60000	16377.60000	15.80558	114.11882	151.94303	20.98708
48-64	1.19000000	1015.07000	16241.12000	15.67387	129.79269	172.75522	20.81219
64-80	1.17000000	998.01000	15968.16000	15.41044	145.20313	193.21763	20.46241
80-96	1.12000000	955.36000	15285.76000	14.75188	159.95501	212.80557	19.58794
96-112	1.05000000	895.65000	14330.40000	13.82989	173.78490	231.16927	18.36370
112-128	0.90000000	767.70000	12283.20000	11.85419	185.63908	246.90958	15.74031
128-144	0.60000000	511.80000	8188.80000	7.90279	193.54188	257.40313	10.49354

09 kW+ VCC

LIST ELEM HEAT GENERATIONS FOR ALL SELECTED ELEMENTS

ELEMENT	HEAT GENERATIONS
37	293.500000
44	363.000000
51	354.000000
58	332.800000
65	233.000000

LIST ELEMENT CONVECTIONS FOR ALL SELECTED ELEMENTS

ELEM	FACE	VALUE(S)		FACE NODES			
17	3	2.00000000	75.0000000	43	36	52	59
24	3	2.00000000	75.0000000	59	52	68	75
31	3	2.00000000	75.0000000	75	68	84	91
38	3	2.00000000	86.2000000	91	84	100	107
45	3	2.00000000	102.000000	107	100	116	123
52	3	2.00000000	118.200000	123	116	132	139
59	3	2.00000000	138.500000	139	132	148	155
66	3	2.00000000	154.100000	155	148	164	171
73	3	2.00000000	157.000000	171	164	180	187
80	3	2.00000000	157.000000	187	180	479	486
19	5	2.00000000	75.0000000	37	44	60	53
26	5	2.00000000	75.0000000	53	60	76	69
33	5	2.00000000	75.0000000	69	76	92	85
40	5	2.00000000	86.2000000	85	92	108	101
47	5	2.00000000	102.000000	101	108	124	117
54	5	2.00000000	118.200000	117	124	140	133
61	5	2.00000000	138.500000	133	140	156	149
68	5	2.00000000	154.100000	149	156	172	165
75	5	2.00000000	157.000000	165	172	188	181
82	5	2.00000000	157.000000	181	188	204	197

ELEM	FACE	VALUE(S)		FACE NODES			
171	6	2.00000000	75.0000000	215	214	221	222
172	6	2.00000000	75.0000000	450	215	222	451
164	3	2.00000000	75.0000000	191	184	200	207
96	6	2.00000000	75.0000000	230	229	236	237
95	6	2.00000000	75.0000000	229	228	235	236
94	6	2.00000000	75.0000000	228	227	234	235
93	6	2.00000000	75.0000000	227	226	233	234
92	6	2.00000000	75.0000000	226	225	233	233
153	3	2.00000000	75.0000000	15	8	24	31
154	3	2.00000000	75.0000000	31	24	40	47
155	3	2.00000000	75.0000000	47	40	56	63
156	3	2.00000000	75.0000000	63	56	72	79
157	3	2.00000000	75.0000000	79	72	88	95
158	3	2.00000000	75.0000000	95	88	104	111
159	3	2.00000000	75.0000000	111	104	120	127
160	3	2.00000000	75.0000000	127	120	136	143
161	3	2.00000000	75.0000000	143	136	152	159
162	3	2.00000000	75.0000000	159	152	168	175
163	3	2.00000000	75.0000000	175	168	184	191
165	3	2.00000000	75.0000000	207	200	216	223

ELEM	FACE	VALUE(S)		FACE NODES			
173	3	2.00000000	75.0000000	475	471	216	223
173	6	2.00000000	75.0000000	216	450	451	223
179	3	2.00000000	157.000000	489	483	196	203
176	3	2.00000000	157.000000	486	479	483	489

LIST TEMPERATURES FOR ALL SELECTED NODES

NODE	LABEL	TEMPR	
144	TEMP	75.0000000	0.000000000E+00
241	TEMP	75.0000000	0.000000000E+00

0.9 kW+

PRINT NODAL TEMPERATURES

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
1	143.05027
2	138.02540
3	123.41401
4	122.80942
5	118.78006
6	115.73439
7	99.431253
8	79.950601
9	138.02540
10	123.41384
11	122.80926
12	118.78004
13	115.73443
14	99.431242

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
15	79.950601
17	159.38242
18	154.36068
19	145.06656
20	143.65565
21	136.38502
22	134.18570
23	101.07304
24	80.145680
25	154.36066
26	145.06692
27	143.65598
28	136.38505
29	134.18560

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
30	101.07306
31	80.145683
33	159.87907
34	154.30695
35	145.74789
36	145.04105
37	135.11248
38	133.66418
39	101.40539

40	80.276606
41	154.30684
42	145.74895
43	145.04234
44	135.11226

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
45	133.66384
46	101.40547
47	80.276610
49	164.57307
50	156.31192
51	148.64577
52	146.92711
53	133.83020
54	133.37319
55	101.50109
56	80.299304
57	156.31277
58	148.65272
59	146.92813

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
60	133.83002
61	133.37263
62	101.50121
63	80.299297
65	165.00754
66	156.21676
67	149.18688
68	149.82722
69	132.45976
70	132.62075
71	101.70700
72	80.335000
73	156.21708
74	149.19845

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
75	149.80143
76	132.45998
77	132.61947
78	101.70730
79	80.334973
81	456.51842

83	180.57126
84	179.87436
85	128.58514
86	128.69508
87	102.63292
88	80.647676
90	179.72611
91	179.12512

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
92	128.57305
93	128.68855
94	102.63447
95	80.647510
97	544.27666
99	224.84673
100	223.80008
101	140.37131
102	140.21898
103	108.16709
104	81.453607
106	223.79348
107	222.86155
108	140.34318

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
109	140.20298
110	108.17089
111	81.453337
113	583.10709
115	245.96220
116	244.83000
117	154.41609
118	154.16424
119	113.28512
120	82.675714
122	244.77366
123	243.77801
124	154.38427
125	154.14628

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
126	113.28939
127	82.675385
129	594.91274

131	257.68364
132	256.89950
133	170.36441
134	170.11988
135	121.21733
136	83.837788
138	256.60150
139	255.92770
140	170.33551
141	170.10350
142	121.22123

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
143	83.837473
144	75.000000
145	520.96981
147	253.40211
148	251.51631
149	175.82130
150	175.50439
151	123.06231
152	84.069727
154	252.27359
155	250.54773
156	175.78897
157	175.48612
158	123.06666

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
159	84.069412
161	451.85660
163	207.99329
164	206.16586
165	159.92589
166	159.67928
167	115.28064
168	82.783441
170	207.20978
171	205.51515
172	159.91034
173	159.67056
174	115.28271
175	82.783272

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE TEMP

177	136.46492
178	136.12139
179	139.83809
180	140.78572
181	137.73080
182	137.43396
183	103.48467
184	80.453926
185	136.10978
186	139.93875
187	140.84708
188	137.73731
189	137.43741
190	103.48385

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
191	80.453955
193	120.15339
194	121.91523
195	122.12430
196	120.99665
197	119.34936
198	119.57901
199	90.995580
200	77.972926
201	121.91523
202	122.12424
203	120.99712
204	119.34808
205	119.57853

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
206	90.995697
207	77.972929
209	92.020935
210	96.785076
211	111.44667
212	112.49640
213	113.10781
214	111.16821
215	79.362591
216	76.816613
217	96.785071
218	111.44668
219	112.49620
220	113.10813

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1

TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
221	111.16821
222	79.362591
223	76.816609
225	91.856810
226	96.730017
227	111.11207
228	112.17533
229	112.79298
230	111.16282
233	96.730018
234	111.11207
235	112.17523
236	112.79321
237	111.16289

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
241	75.000000
242	81.736897
243	81.736893
258	82.122411
259	82.122420
274	82.262250
275	82.262282
290	82.298443
291	82.298471
306	82.330282
307	82.330268
322	82.593715
323	82.593402
338	83.961744

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
339	83.961090
354	85.436769
355	85.436016
370	87.229740
371	87.229050
386	87.587855
387	87.587099
402	85.694153
403	85.693776
418	82.452236
419	82.452385
434	78.858912
435	78.858877
450	77.496352

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
451	77.496356
468	111.72793
469	79.851765
470	77.585538
471	76.778327
472	111.72791
473	79.851769
474	77.585540
475	76.778323
476	135.07153
477	137.09675
478	135.80210
479	135.09488
480	121.70801

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
481	121.18573
482	125.82467
483	126.95423
484	137.10082
485	135.77323
486	135.08288
487	121.18583
488	125.82400
489	126.95049

MAXIMUMS
NODE 129
VALUE 594.91274

0.9 kW/t

MSB.

LIST ELEM HEAT GENERATIONS FOR ALL SELECTED ELEMENTS

ELEMENT	HEAT GENERATIONS
1	558.230000
14	558.230000
15	558.230000
18	558.230000
19	558.230000
22	558.230000
23	558.230000
27	558.230000
30	558.230000
31	558.230000
34	558.230000
35	558.230000
66	558.230000
67	558.230000
79	558.230000
300	558.230000
301	558.230000
302	558.230000
303	558.230000
304	558.230000
305	558.230000
306	558.230000
307	558.230000
308	558.230000
309	558.230000
310	558.230000
311	558.230000
312	558.230000
313	558.230000
314	558.230000
315	558.230000
316	558.230000
317	558.230000
318	558.230000
319	558.230000
320	558.230000
321	558.230000
322	558.230000
323	558.230000

LIST TEMPERATURES FOR ALL SELECTED NODES

NODE	LABEL	TEMPR	
176	TEMP	257.000000	0.000000000E+00
177	TEMP	257.000000	0.000000000E+00
178	TEMP	257.000000	0.000000000E+00
179	TEMP	257.000000	0.000000000E+00
180	TEMP	257.000000	0.000000000E+00
181	TEMP	257.000000	0.000000000E+00
188	TEMP	257.000000	0.000000000E+00
190	TEMP	257.000000	0.000000000E+00

0.9 kWt

MSB

PRINT NODAL TEMPERATURES

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
1	624.47571
2	624.38921
3	615.16315
4	582.05994
5	581.66239
6	581.28638
7	537.78080
8	473.96491
9	473.35156
10	472.81712
11	424.26171
12	360.40099
13	357.26298
15	624.38539

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
16	615.22629
17	581.95699
18	581.65510
19	581.36433
20	537.83603
21	473.79006
22	473.31189
23	472.91326
24	424.29207
25	360.27677
26	360.13577
29	628.39248
30	568.73461
31	568.76408

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
32	568.92354
33	540.88025
34	447.08306
35	447.16063
36	447.37589
37	415.85863
38	321.01974
39	320.82875
43	530.67180

44	530.42918
45	529.96603
46	472.29927
47	389.19769
48	388.76461

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
49	388.09457
50	318.42513
51	283.26726
52	283.35348
57	529.96289
58	529.49503
59	472.35326
60	388.95966
61	385.73692
62	387.55002
63	318.37609
64	282.91187
65	280.59263
71	529.23716

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
72	472.52184
73	388.37037
74	387.80190
75	384.16109
76	318.58838
77	278.79434
85	438.77852
86	323.70782
87	323.59335
88	323.14873
89	292.40297
99	295.43742
100	295.27169
101	293.69683

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
102	262.79716
113	294.86392
114	292.48386
115	261.69993
127	292.48386
170	257.88370

171	257.38738
172	257.46267
173	259.41003
174	257.92698
175	258.04625
176	257.00000
177	257.00000
178	257.00000

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
179	257.00000
180	257.00000
181	257.00000
182	258.19303
184	257.65034
188	257.00000
190	257.00000
200	632.89983
201	630.73676
202	609.68017
203	569.04634
204	550.58079
205	511.32489
206	451.78758

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
207	432.08299
208	392.10452
211	586.22980
212	539.44498
213	517.37590
214	474.16638
215	404.17208
216	383.57976
217	346.26691
221	490.20711
222	464.28275
223	417.50300
232	356.98276
250	607.42166

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
251	565.24807
252	503.91400
253	440.49178

254	380.44279
255	395.92936

MAXIMUMS

NODE	200
VALUE	632.89983

NORMAL FLOW PATH	D(H)	A	L	F	K	A**2	K/A**2	VEL	Re	% k/A**2
1. INLET SNOW SKIRT with screens		11.87000			0.77000	140.89690	0.00546	1.26790		0.90
2. INLET SECTION DOWN OUTSIDE	0.66700	11.87000	3.00000	0.04000	0.17991	140.89690	0.00128	1.26790	4.683E+03	0.21
3. BEND & ENTER. SKID CHANNELS		4.68000			1.38000	21.90240	0.06301	3.21582		10.43
4. SKID CHANNELS	1.08000	4.68000	5.11833	0.03000	0.14218	21.90240	0.00649	3.21582	1.923E+04	1.07
5. BEND INTO 12 IN SQ TUBE		4.00000			2.16000	16.00000	0.13500	3.76251		22.35
6. BENDS AT CHANNEL AND INLET ASSY		4.00000			0.38700	16.00000	0.02419	3.76251		4.00
7. STRAIGHT SECTION	1.00000	4.00000	1.33333	0.02600	0.03467	16.00000	0.00217	3.76251	2.083E+04	0.36
8. INLET ASSEMBLY AND BEND INTO ANN.		4.47200			1.38400	19.99878	0.06920	3.36539		11.46
9. SUDDEN EXPANSION INTO ANNULUS		5.76000			0.05000	33.17760	0.00151	2.61285		0.25
10. FLOW UP ANNULUS	0.66600	5.76000	14.16667	0.03300	0.70195	33.17760	0.02116	2.61285	9.635E+03	3.50
11. BEND&CNTRCT INTO 3" by 52" SLIT		4.33333			1.20000	18.77778	0.06391	3.47308		10.58
12. Z - BEND		4.33333			2.78000	18.77778	0.14805	3.47308		24.51
13. OUTLET STRAIGHT SECTION	1.89000	4.33333	2.66667	0.02600	0.03668	18.77778	0.00195	3.47308	3.635E+04	0.32
14. DISCHARGE with screens		4.33333			1.14000	18.77778	0.06071	3.47308		10.05

0.9 kw/assembly

SUM K/A**2	0.60408	SUM K/A**2	0.60408
INLET TEMP	75.00000	INLET TEMP	100.00000
OUTLET TEMP	156.55000	OUTLET TEMP	204.50000
AVG TEMP	115.77500	AVG TEMP	152.25000
DRAFT HEIGHT	15.00000	DRAFT HEIGHT	15.00000
GUESS DT=	81.55000	GUESS DT=	104.50000
HEAT =	73699.20000	HEAT =	81888.00000
CP=	0.24100	CP=	0.24100
M=(HEAT BALENCE)	1.04164	M=(HEAT BAL)	0.90320
AVG DENSITY	0.06921	AVG DENSITY	0.05519
DP FLOW=	0.14705	DP FLOW=	0.13865
DP STACK=	0.14704	DP STACK=	0.14130
DT CALC	81.55000	DT CALC	104.50000
M=(DP FLOW)	1.04164	M=(DP FLOW)	0.90320
AVG Q/IN	511.80000	AVG Q/IN	568.66667

Q= 0.9 kWT

100

X POSITION	f RELATIVE POWER	Q(x) POWER/IN	QX	DT TEMP	AIR TEMPERATURE	AIR TEMPERATURE	DT TEMP
0					75.00000	100.00000	
0-16	0.69000000	353.14200	5650.27200	6.27822	81.27822	107.24054	7.24054
16-32	1.08000000	552.74400	8843.90400	9.82678	91.10499	118.57357	11.33303
32-48	1.20000000	614.16000	9826.56000	10.91864	102.02363	131.16582	12.59225
48-64	1.19000000	609.04200	9744.67200	10.82765	112.85128	143.65313	12.48731
64-80	1.17000000	598.80600	9580.89600	10.64567	123.49695	155.93058	12.27744
80-96	1.12000000	573.21600	9171.45600	10.19073	133.68768	167.68334	11.75277
96-112	1.05000000	537.39000	8598.24000	9.55381	143.24149	178.70156	11.01822
112-128	0.90000000	460.62000	7369.92000	8.18898	151.43047	188.14575	9.44419
128-144	0.60000000	307.08000	4913.28000	5.45932	156.88979	194.44188	6.29612

0.75 kW+
VCC

LIST ELEM HEAT GENERATIONS FOR ALL SELECTED ELEMENTS

ELEMENT	HEAT GENERATIONS
37	244.600000
44	302.500000
51	295.000000
58	277.300000
65	194.100000

LIST ELEMENT CONVECTIONS FOR ALL SELECTED ELEMENTS

ELEM	FACE	VALUE(S)		FACE NODES			
17	3	2.00000000	75.0000000	43	36	52	59
24	3	2.00000000	75.0000000	59	52	68	75
31	3	2.00000000	75.0000000	75	68	84	91
38	3	2.00000000	84.8000000	91	84	100	107
45	3	2.00000000	99.0000000	107	100	116	123
52	3	2.00000000	113.000000	123	116	132	139
59	3	2.00000000	131.000000	139	132	148	155
66	3	2.00000000	144.500000	155	148	164	171
73	3	2.00000000	147.000000	171	164	180	187
80	3	2.00000000	147.000000	187	180	479	486
19	5	2.00000000	75.0000000	37	44	60	53
26	5	2.00000000	75.0000000	53	60	76	69
33	5	2.00000000	75.0000000	69	76	92	85
40	5	2.00000000	84.8000000	85	92	108	101
47	5	2.00000000	99.0000000	101	108	124	117
54	5	2.00000000	113.000000	117	124	140	133
61	5	2.00000000	131.000000	133	140	156	149
68	5	2.00000000	144.500000	149	156	172	165
75	5	2.00000000	147.000000	165	172	188	181
82	5	2.00000000	147.000000	181	188	204	197

ELEM	FACE	VALUE(S)		FACE NODES			
171	6	2.00000000	75.0000000	215	214	221	222
172	6	2.00000000	75.0000000	450	215	222	451
164	3	2.00000000	75.0000000	191	184	200	207
96	6	2.00000000	75.0000000	230	229	236	237
95	6	2.00000000	75.0000000	229	228	235	236
94	6	2.00000000	75.0000000	228	227	234	235
93	6	2.00000000	75.0000000	227	226	233	234
92	6	2.00000000	75.0000000	226	225	233	233
153	3	2.00000000	75.0000000	15	8	24	31
154	3	2.00000000	75.0000000	31	24	40	47
155	3	2.00000000	75.0000000	47	40	56	63
156	3	2.00000000	75.0000000	63	56	72	79
157	3	2.00000000	75.0000000	79	72	88	95
158	3	2.00000000	75.0000000	95	88	104	111
159	3	2.00000000	75.0000000	111	104	120	127
160	3	2.00000000	75.0000000	127	120	136	143
161	3	2.00000000	75.0000000	143	136	152	159
162	3	2.00000000	75.0000000	159	152	168	175
163	3	2.00000000	75.0000000	175	168	184	191
165	3	2.00000000	75.0000000	207	200	216	223

ELEM	FACE	VALUE(S)		FACE NODES			
173	3	2.00000000	75.0000000	475	471	216	223
173	6	2.00000000	75.0000000	216	450	451	223
179	3	2.00000000	147.000000	489	483	196	203
176	3	2.00000000	147.000000	486	479	483	489

LIST TEMPERATURES FOR ALL SELECTED NODES

NODE	LABEL	TEMPR	
144	TEMP	75.0000000	0.000000000E+00
241	TEMP	75.0000000	0.000000000E+00

0.75 kW+

PRINT NODAL TEMPERATURES

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
1	132.15973
2	127.91552
3	115.59241
4	115.08994
5	111.73499
6	109.17864
7	95.478597
8	79.144002
9	127.91552
10	115.59226
11	115.08981
12	111.73497
13	109.17867
14	95.478588

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
15	79.144001
17	145.88266
18	141.68648
19	133.86651
20	132.66194
21	126.44952
22	124.58055
23	96.790157
24	79.301464
25	141.68646
26	133.86681
27	132.66222
28	126.44956
29	124.58047

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
30	96.790175
31	79.301467
33	146.30308
34	141.63706
35	134.45077
36	133.84976
37	125.35795
38	124.11654
39	97.055564

40	79.407777
41	141.63697
42	134.45166
43	133.85083
44	125.35777

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
45	124.11627
46	97.055622
47	79.407779
49	150.23932
50	143.31015
51	136.93572
52	135.46838
53	124.25780
54	123.86374
55	97.132566
56	79.425997
57	143.31086
58	136.94149
59	135.46922

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
60	124.25766
61	123.86329
62	97.132664
63	79.425991
65	150.60749
66	143.22621
67	137.40009
68	137.94858
69	123.07962
70	123.21301
71	97.301736
72	79.454770
73	143.22649
74	137.40971

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
75	137.92713
76	123.07980
77	123.21200
78	97.301971
79	79.454749
81	134.36336

83	164.14292
84	163.56125
85	119.70289
86	119.79800
87	98.059595
88	79.708119
90	163.43820
91	162.93624

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
92	119.69336
93	119.79286
94	98.060823
95	79.707991
97	468.84868
99	202.62887
100	201.75610
101	129.15116
102	129.02848
103	102.55053
104	80.370502
106	201.74978
107	200.97182
108	129.12991

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
109	129.01638
110	102.55340
111	80.370297
113	501.82556
115	221.19070
116	220.24998
117	141.09204
118	140.88294
119	106.88413
120	81.405115
122	220.19866
123	219.37068
124	141.06806
125	140.86941

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
126	106.88735
127	81.404868
129	512.69450

131	231.84155
132	231.18835
133	154.99397
134	154.79054
135	113.79296
136	82.425043
138	230.93832
139	230.37645
140	154.97234
141	154.77828
142	113.79587

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
143	82.424807
144	75.000000
145	451.15782
147	228.61008
148	227.04279
149	160.42373
150	160.15678
151	115.74514
152	82.693264
154	227.66804
155	226.23198
156	160.39938
157	160.14302
158	115.74841

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
159	82.693027
161	393.51941
163	189.90564
164	188.37939
165	148.03911
166	147.82697
167	109.60883
168	81.672218
170	189.25211
171	187.83509
172	148.02691
173	147.82013
174	109.61046
175	81.672087

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE TEMP

177	128.67485
178	128.37171
179	131.63459
180	132.43502
181	129.60811
182	129.34296
183	99.689240
184	79.712783
185	128.36203
186	131.71855
187	132.48682
188	129.61329
189	129.34570
190	99.688588

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
191	79.712805
193	114.54685
194	116.07865
195	116.20472
196	115.21902
197	113.75719
198	113.95403
199	88.919449
200	77.577922
201	116.07865
202	116.20468
203	115.21941
204	113.75617
205	113.95365

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
206	88.919542
207	77.577925
209	89.776344
210	93.945606
211	106.87246
212	107.78855
213	108.32763
214	106.63931
215	78.801838
216	76.578288
217	93.945602
218	106.87247
219	107.78839
220	108.32789

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1

TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
221	106.63931
222	78.801837
223	76.578285
225	89.633302
226	93.899148
227	106.58045
228	107.50832
229	108.05244
230	106.63552
233	93.899149
234	106.58045
235	107.50824
236	108.05262
237	106.63558

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
241	75.000000
242	80.641052
243	80.641050
258	80.951987
259	80.951994
274	81.066410
275	81.066436
290	81.095970
291	81.095992
306	81.120921
307	81.120910
322	81.332436
323	81.332190
338	82.455162

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
339	82.454667
354	83.704074
355	83.703506
370	85.272136
371	85.271619
386	85.675835
387	85.675266
402	84.173446
403	84.173150
418	81.443130
419	81.443248
434	78.346709
435	78.346681
450	77.169692

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
451	77.169695
468	107.12635
469	79.228071
470	77.246776
471	76.545237
472	107.12634
473	79.228073
474	77.246778
475	76.545234
476	127.46126
477	129.22629
478	128.12289
479	127.51853
480	115.90466

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
481	115.43222
482	119.44090
483	120.42651
484	129.22968
485	128.09883
486	127.50832
487	115.43231
488	119.44033
489	120.42340

MAXIMUMS

NODE	129
VALUE	512.69450

0.75 kWt

MSB

LIST ELEM HEAT GENERATIONS FOR ALL SELECTED ELEMENTS

ELEMENT	HEAT GENERATIONS
1	465.180000
14	465.180000
15	465.180000
18	465.180000
19	465.180000
22	465.180000
23	465.180000
27	465.180000
30	465.180000
31	465.180000
34	465.180000
35	465.180000
66	465.180000
67	465.180000
79	465.180000
300	465.180000
301	465.180000
302	465.180000
303	465.180000
304	465.180000
305	465.180000
306	465.180000
307	465.180000
308	465.180000
309	465.180000
310	465.180000
311	465.180000
312	465.180000
313	465.180000
314	465.180000
315	465.180000
316	465.180000
317	465.180000
318	465.180000
319	465.180000
320	465.180000
321	465.180000
322	465.180000
323	465.180000

LIST TEMPERATURES FOR ALL SELECTED NODES

NODE	LABEL	TEMPR	
176	TEMP	232.000000	0.000000000E+00
177	TEMP	232.000000	0.000000000E+00
178	TEMP	232.000000	0.000000000E+00
179	TEMP	232.000000	0.000000000E+00
180	TEMP	232.000000	0.000000000E+00
181	TEMP	232.000000	0.000000000E+00
188	TEMP	232.000000	0.000000000E+00
190	TEMP	232.000000	0.000000000E+00

0.75 kWt

MSB

PRINT NODAL TEMPERATURES

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
1	542.67385
2	542.60177
3	534.91368
4	507.32919
5	506.99793
6	506.68463
7	470.43739
8	417.26338
9	416.75186
10	416.30621
11	375.93368
12	323.08805
13	320.62345
15	542.59858

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
16	534.96629
17	507.24340
18	506.99185
19	506.74957
20	470.48341
21	417.11771
22	416.71899
23	416.38595
24	375.95916
25	322.98246
26	322.86163
29	545.93631
30	496.22142
31	496.24598

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
32	496.37889
33	473.02893
34	394.85806
35	394.92336
36	395.10470
37	368.24732
38	289.08558
39	288.92890
43	464.49590

44	464.29368
45	463.90770
46	415.86285
47	346.78274
48	346.41829

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
49	345.84980
50	285.99468
51	255.19684
52	255.27056
57	463.90491
58	463.51474
59	415.90854
60	346.58085
61	344.07395
62	345.38319
63	285.95974
64	254.88068
65	252.91600
71	463.29866

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
72	416.05108
73	346.07970
74	345.59365
75	342.48071
76	286.10601
77	251.26522
85	387.31396
86	290.68992
87	290.59770
88	290.16394
89	262.94175
99	265.90487
100	265.76021
101	264.37244

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
102	237.07972
113	265.40035
114	263.29888
115	236.11810
127	263.29888
170	232.70358

171	232.31352
172	232.40398
173	233.92690
174	232.81030
175	232.87955
176	232.00000
177	232.00000
178	232.00000

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
179	232.00000
180	232.00000
181	232.00000
182	233.11447
184	232.58158
188	232.00000
190	232.00000
200	549.69354
201	547.89059
202	530.34367
203	496.48882
204	481.10703
205	448.39596
206	398.67546

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
207	382.16005
208	348.83298
211	510.79896
212	471.81866
213	453.44736
214	417.46657
215	358.55493
216	340.87137
217	309.33865
221	430.65314
222	408.86285
223	369.72732
232	318.31715
250	528.46002

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
251	493.32434
252	442.23412
253	389.06108

254	338.53552
255	351.24007

MAXIMUMS

NODE	200
VALUE	549.69354

NORMAL FLOW PATH	D(H)	A	L	F	K	A**2	K/A**2	VEL	Re	% k/A**2
1. INLET SNOW SKIRT with screens		11.87000			0.77000	140.89690	0.00546	1.19344		0.90
2. INLET SECTION DOWN OUTSIDE	0.66700	11.87000	3.00000	0.04000	0.17991	140.89690	0.00128	1.19344	4.441E+03	0.21
3. BEND & ENTER. SKID CHANNELS		4.68000			1.38000	21.90240	0.06301	3.02696		10.43
4. SKID CHANNELS	1.08000	4.68000	5.11833	0.03000	0.14218	21.90240	0.00649	3.02696	1.824E+04	1.07
5. BEND INTO 12 IN SQ TUBE		4.00000			2.16000	16.00000	0.13500	3.54155		22.35
6. BENDS AT CHANNEL AND INLET ASSY		4.00000			0.38700	16.00000	0.02419	3.54155		4.00
7. STRAIGHT SECTION	1.00000	4.00000	1.33333	0.02600	0.03467	16.00000	0.00217	3.54155	1.976E+04	0.36
8. INLET ASSEMBLY AND BEND INTO ANN.		4.47200			1.38400	19.99878	0.06920	3.16775		11.46
9. SUDDEN EXPANSION INTO ANNULUS		5.76000			0.05000	33.17760	0.00151	2.45941		0.25
10. FLOW UP ANNULUS	0.66600	5.76000	14.16667	0.03300	0.70195	33.17760	0.02116	2.45941	9.139E+03	3.50
11. BEND&CNTRCT INTO 3" by 52" SLIT		4.33333			1.20000	18.77778	0.06391	3.26912		10.58
12. Z - BEND		4.33333			2.78000	18.77778	0.14805	3.26912		24.51
13. OUTLET STRAIGHT SECTION	1.89000	4.33333	2.66667	0.02600	0.03668	18.77778	0.00195	3.26912	3.447E+04	0.32
14. DISCHARGE with screens		4.33333			1.14000	18.77778	0.06071	3.26912		10.05

0.75 kw/assembly

SUM K/A**2	0.60408	SUM K/A**2	0.60408
INLET TEMP	75.00000	INLET TEMP	100.00000
OUTLET TEMP	146.65000	OUTLET TEMP	204.50000
AVG TEMP	110.82500	AVG TEMP	152.25000
DRAFT HEIGHT	15.00000	DRAFT HEIGHT	15.00000
GUESS DT=	71.65000	GUESS DT=	104.50000
HEAT =	61416.00000	HEAT =	81888.00000
CP=	0.24100	CP=	0.24100
M=(HEAT BALENCE)	0.98797	M=(HEAT BAL)	0.90320
AVG DENSITY	0.06974	AVG DENSITY	0.05519
DP FLOW=	0.13128	DP FLOW=	0.13865
DP STACK=	0.13131	DP STACK=	0.14130
DT CALC	71.65000	DT CALC	104.50000
M=(DP FLOW)	0.98797	M=(DP FLOW)	0.90320
AVG Q/IN	426.50000	AVG Q/IN	568.66667

100

$Q = 0.75$ kWt

X POSITION	f RELATIVE POWER	Q(x) POWER/IN	QX	DT TEMP	AIR TEMPERATURE	AIR TEMPERATURE	DT TEMP
0					75.00000	100.00000	
0-16	0.69000000	294.28500	4708.56000	5.51605	80.51605	106.03379	6.03379
16-32	1.08000000	460.62000	7369.92000	8.63383	89.14988	115.47797	9.44419
32-48	1.20000000	511.80000	8188.80000	9.59314	98.74302	125.97152	10.49354
48-64	1.19000000	507.53500	8120.56000	9.51320	108.25621	136.37761	10.40610
64-80	1.17000000	499.00500	7984.08000	9.35331	117.60953	146.60881	10.23120
80-96	1.12000000	477.68000	7642.88000	8.95360	126.56312	156.40279	9.79397
96-112	1.05000000	447.82500	7165.20000	8.39400	134.95712	165.58464	9.18185
112-128	0.90000000	383.85000	6141.60000	7.19485	142.15197	173.45479	7.87016
128-144	0.60000000	255.90000	4094.40000	4.79657	146.94854	178.70156	5.24677

0.E KW+ VCC

LIST ELEM HEAT GENERATIONS FOR ALL SELECTED ELEMENTS

ELEMENT	HEAT GENERATIONS
37	163.100000
44	201.700000
51	196.700000
58	184.900000
65	129.500000

LIST ELEMENT CONVECTIONS FOR ALL SELECTED ELEMENTS

ELEM	FACE	VALUE(S)		FACE NODES			
17	3	2.00000000	75.0000000	43	36	52	59
24	3	2.00000000	75.0000000	59	52	68	75
31	3	2.00000000	75.0000000	75	68	84	91
38	3	2.00000000	82.4000000	91	84	100	107
45	3	2.00000000	93.0000000	107	100	116	123
52	3	2.00000000	103.500000	123	116	132	139
59	3	2.00000000	117.000000	139	132	148	155
66	3	2.00000000	127.400000	155	148	164	171
73	3	2.00000000	129.000000	171	164	180	187
80	3	2.00000000	129.000000	187	180	479	486
19	5	2.00000000	75.0000000	37	44	60	53
26	5	2.00000000	75.0000000	53	60	76	69
33	5	2.00000000	75.0000000	69	76	92	85
40	5	2.00000000	82.4000000	85	92	108	101
47	5	2.00000000	93.0000000	101	108	124	117
54	5	2.00000000	103.500000	117	124	140	133
61	5	2.00000000	117.000000	133	140	156	149
68	5	2.00000000	127.400000	149	156	172	165
75	5	2.00000000	129.000000	165	172	188	181
82	5	2.00000000	129.000000	181	188	204	197

ELEM	FACE	VALUE(S)		FACE NODES			
171	6	2.00000000	75.0000000	215	214	221	222
172	6	2.00000000	75.0000000	450	215	222	451
164	3	2.00000000	75.0000000	191	184	200	207
96	6	2.00000000	75.0000000	230	229	236	237
95	6	2.00000000	75.0000000	229	228	235	236
94	6	2.00000000	75.0000000	228	227	234	235
93	6	2.00000000	75.0000000	227	226	233	234
92	6	2.00000000	75.0000000	226	225	233	233
153	3	2.00000000	75.0000000	15	8	24	31
154	3	2.00000000	75.0000000	31	24	40	47
155	3	2.00000000	75.0000000	47	40	56	63
156	3	2.00000000	75.0000000	63	56	72	79
157	3	2.00000000	75.0000000	79	72	88	95
158	3	2.00000000	75.0000000	95	88	104	111
159	3	2.00000000	75.0000000	111	104	120	127
160	3	2.00000000	75.0000000	127	120	136	143
161	3	2.00000000	75.0000000	143	136	152	159
162	3	2.00000000	75.0000000	159	152	168	175
163	3	2.00000000	75.0000000	175	168	184	191
165	3	2.00000000	75.0000000	207	200	216	223

ELEM	FACE	VALUE(S)		FACE NODES			
173	3	2.00000000	75.0000000	475	471	216	223
173	6	2.00000000	75.0000000	216	450	451	223
179	3	2.00000000	129.000000	489	483	196	203
176	3	2.00000000	129.000000	486	479	483	489

LIST TEMPERATURES FOR ALL SELECTED NODES

NODE	LABEL	TEMPR	
144	TEMP	75.0000000	0.000000000E+00
241	TEMP	75.0000000	0.000000000E+00

0.5 kW+

PRINT NODAL TEMPERATURES

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
1	113.85171
2	110.94612
3	102.52292
4	102.18661
5	99.934983
6	98.199526
7	88.882847
8	77.803996
9	110.94612
10	102.52282
11	102.18652
12	99.934971
13	98.199549
14	88.882842

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
15	77.803996
17	123.15063
18	120.33841
19	115.03664
20	114.19995
21	109.87860
22	108.58756
23	89.710562
24	77.904871
25	120.33840
26	115.03684
27	114.20013
28	109.87863
29	108.58751

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
30	89.710573
31	77.904873
33	123.43874
34	120.30015
35	115.44567
36	115.03081
37	109.11516
38	108.24824
39	89.877694

40	77.973603
41	120.30009
42	115.44626
43	115.03152
44	109.11505

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
45	108.24808
46	89.877729
47	77.973604
49	126.09343
50	121.41949
51	117.18529
52	116.16469
53	108.34561
54	108.06875
55	89.926722
56	77.985177
57	121.41997
58	117.18913
59	116.16525

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
60	108.34552
61	108.06848
62	89.926782
63	77.985174
65	126.34621
66	121.35805
67	117.51087
68	117.89344
69	107.51933
70	107.60934
71	90.037880
72	78.003568
73	121.35824
74	117.51727

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
75	117.87918
76	107.51944
77	107.60872
78	90.038022
79	78.003555
81	290.85393

83	136.05894
84	135.67009
85	105.11448
86	105.18029
87	90.532095
88	78.167624
90	135.58864
91	135.25271

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
92	105.10870
93	105.17718
94	90.532838
95	78.167549
97	341.36454
99	163.72912
100	163.14577
101	111.06083
102	110.98468
103	93.448644
104	78.607256
106	163.14150
107	162.62051
108	111.04902

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
109	110.97795
110	93.450244
111	78.607141
113	364.21334
115	177.47449
116	176.85073
117	119.45280
118	119.31254
119	96.475700
120	79.332353
122	176.81130
123	176.26160
124	119.43955
125	119.30507

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
126	96.477479
127	79.332217
129	373.09558

131	185.99399
132	185.55840
133	129.71470
134	129.57821
135	101.57628
136	80.097504
138	185.39020
139	185.01482
140	129.70292
141	129.57153
142	101.57787

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
143	80.097374
144	75.000000
145	332.58252
147	184.66360
148	183.62375
149	134.75226
150	134.56771
151	103.53275
152	80.392854
154	184.03331
155	183.07878
156	134.73882
157	134.56012
158	103.53456

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
159	80.392722
161	294.28304
163	158.03461
164	157.01131
165	127.71754
166	127.56341
167	99.919011
168	79.780871
170	157.59754
171	156.64560
172	127.71024
173	127.55931
174	99.919985
175	79.780794

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE TEMP

177	114.78392
178	114.55586
179	117.00276
180	117.55428
181	115.29522
182	115.09080
183	93.074606
184	78.430163
185	114.54938
186	117.05892
187	117.58962
188	115.29838
189	115.09248
190	93.074207

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
191	78.430177
193	104.48131
194	105.60908
195	105.63430
196	104.90293
197	103.79327
198	103.93439
199	85.263438
200	76.888665
201	105.60908
202	105.63427
203	104.90319
204	103.79264
205	103.93416

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
206	85.263495
207	76.888667
209	85.842274
210	88.947505
211	98.705312
212	99.383850
213	99.790018
214	98.544995
215	77.810495
216	76.160373
217	88.947502
218	98.705322
219	99.383749
220	99.790177

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1

TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
221	98.544997
222	77.810494
223	76.160371
225	85.736505
226	88.915250
227	98.488846
228	99.176165
229	99.585564
230	98.543316
233	88.915251
234	98.488847
235	99.176114
236	99.585675
237	98.543354

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
241	75.000000
242	78.818671
243	78.818670
258	79.017625
259	79.017629
274	79.092441
275	79.092456
290	79.111728
291	79.111741
306	79.127006
307	79.126999
322	79.261840
323	79.261691
338	80.005019

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
339	80.004744
354	80.880097
355	80.879783
370	82.048185
371	82.047903
386	82.481584
387	82.481270
402	81.582221
403	81.582045
418	79.694566
419	79.694638
434	77.452619
435	77.452602
450	76.596294

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
451	76.596296
468	98.904077
469	78.125509
470	76.652433
471	76.136357
472	98.904071
473	78.125510
474	76.652434
475	76.136355
476	113.88962
477	115.19330
478	114.42123
479	113.99399
480	105.48719

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
481	105.11823
482	108.03724
483	108.76630
484	115.19557
485	114.40515
486	113.98693
487	105.11829
488	108.03685
489	108.76425

MAXIMUMS

NODE	129
VALUE	373.09558

0.5 kW/t

MSB

LIST ELEM HEAT GENERATIONS FOR ALL SELECTED ELEMENTS

ELEMENT	HEAT GENERATIONS
1	310.120000
14	310.120000
15	310.120000
18	310.120000
19	310.120000
22	310.120000
23	310.120000
27	310.120000
30	310.120000
31	310.120000
34	310.120000
35	310.120000
66	310.120000
67	310.120000
79	310.120000
300	310.120000
301	310.120000
302	310.120000
303	310.120000
304	310.120000
305	310.120000
306	310.120000
307	310.120000
308	310.120000
309	310.120000
310	310.120000
311	310.120000
312	310.120000
313	310.120000
314	310.120000
315	310.120000
316	310.120000
317	310.120000
318	310.120000
319	310.120000
320	310.120000
321	310.120000
322	310.120000
323	310.120000

LIST TEMPERATURES FOR ALL SELECTED NODES

NODE	LABEL	TEMPR	
176	TEMP	186.000000	0.000000000E+00
177	TEMP	186.000000	0.000000000E+00
178	TEMP	186.000000	0.000000000E+00
179	TEMP	186.000000	0.000000000E+00
180	TEMP	186.000000	0.000000000E+00
181	TEMP	186.000000	0.000000000E+00
188	TEMP	186.000000	0.000000000E+00
190	TEMP	186.000000	0.000000000E+00

0.5 kW/t

MSB

PRINT NODAL TEMPERATURES

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
1	398.70951
2	398.66146
3	393.53631
4	375.14879
5	374.92803
6	374.71927
7	350.57494
8	315.15018
9	314.80903
10	314.51208
11	287.77935
12	253.09357
13	251.64683
15	398.65933

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
16	393.57138
17	375.09161
18	374.92395
19	374.76252
20	350.60561
21	315.05315
22	314.78727
23	314.56457
24	287.79658
25	253.02066
26	252.93578
29	400.88084
30	367.73386
31	367.75025

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
32	367.83888
33	352.29887
34	300.18202
35	300.22630
36	300.34956
37	281.76682
38	228.94505
39	228.84418
43	346.56805

44	346.43318
45	346.17574
46	314.15036
47	268.29447
48	268.04726

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
49	267.65589
50	225.55769
51	203.14901
52	203.20060
57	346.17367
58	345.91312
59	314.18173
60	268.15535
61	266.70098
62	267.32877
63	225.54209
64	202.91214
65	201.56285
71	345.76756

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
72	314.27933
73	267.80871
74	267.46934
75	265.29759
76	225.60010
77	200.26288
85	294.35804
86	229.04448
87	228.98707
88	228.61703
89	208.44512
99	210.98082
100	210.87612
101	209.85483

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
102	189.70023
113	210.61069
114	209.05947
115	188.99937
127	209.05947
170	186.42741

171	186.19521
172	186.29278
173	187.18573
174	186.58560
175	186.59524
176	186.00000
177	186.00000
178	186.00000

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
179	186.00000
180	186.00000
181	186.00000
182	186.89598
184	186.43759
188	186.00000
190	186.00000
200	403.38869
201	402.18563
202	390.48708
203	367.92848
204	357.68558
205	335.88542
206	302.64555

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
207	291.55320
208	269.36485
211	377.44951
212	351.46657
213	339.24180
214	315.28640
215	275.30820
216	262.89251
217	241.35294
221	323.84854
222	309.08919
223	282.80866
232	247.32904
250	389.22739

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
251	365.81412
252	331.78356
253	295.96644

254	261.75185
255	269.85602

MAXIMUMS

NODE	200
VALUE	403.38869

NORMAL FLOW PATH	D(H)	A	L	F	K	A**2	K/A**2	VEL	Re	% k/A**2
1. INLET SNOW SKIRT with screens		11.87000			0.77000	140.89690	0.00546	1.04158		0.90
2. INLET SECTION DOWN OUTSIDE	0.66700	11.87000	3.00000	0.04000	0.17991	140.89690	0.00128	1.04158	3.929E+03	0.21
3. BEND & ENTER. SKID CHANNELS		4.68000			1.38000	21.90240	0.06301	2.64179		10.41
4. SKID CHANNELS	1.08000	4.68000	5.11833	0.03000	0.14218	21.90240	0.00649	2.64179	1.613E+04	1.07
5. BEND INTO 12 IN SQ TUBE		4.00000			2.16000	16.00000	0.13500	3.09089		22.35
6. BENDS AT CHANNEL AND INLET ASSY		4.00000			0.38700	16.00000	0.02419	3.09089		4.00
7. STRAIGHT SECTION	1.00000	4.00000	1.33333	0.02600	0.03467	16.00000	0.00217	3.09089	1.748E+04	0.36
8. INLET ASSEMBLY AND BEND INTO ANN.		4.47200			1.38400	19.99878	0.06920	2.76466		11.46
9. SUDDEN EXPANSION INTO ANNULUS		5.76000			0.05000	33.17760	0.00151	2.14645		0.25
10. FLOW UP ANNULUS	0.66600	5.76000	14.16667	0.03300	0.70195	33.17760	0.02116	2.14645	8.084E+03	3.50
11. BEND&CNTRCT INTO 3" by 52" SLIT		4.33333			1.20000	18.77778	0.06391	2.85313		10.58
12. Z - BEND		4.33333			2.78000	18.77778	0.14805	2.85313		24.51
13. OUTLET STRAIGHT SECTION	1.89000	4.33333	2.66667	0.02600	0.03668	18.77778	0.00195	2.85313	3.049E+04	0.32
14. DISCHARGE with screens		4.33333			1.14000	18.77778	0.06071	2.85313		10.05

0.5 kw/assembly

SUM K/A**2	0.60408	SUM K/A**2	0.60408
INLET TEMP	75.00000	INLET TEMP	100.00000
OUTLET TEMP	129.00000	OUTLET TEMP	204.50000
AVG TEMP	102.00000	AVG TEMP	152.25000
DRAFT HEIGHT	15.00000	DRAFT HEIGHT	15.00000
GUESS DT=	54.00000	GUESS DT=	104.50000
HEAT =	40944.00000	HEAT =	81888.00000
CP=	0.24100	CP=	0.24100
M=(HEAT BALENCE)	0.87393	M=(HEAT BAL)	0.90320
AVG DENSITY	0.07069	AVG DENSITY	0.05519
DP FLOW=	0.10135	DP FLOW=	0.13865
DP STACK=	0.10188	DP STACK=	0.14130
DT CALC	54.00000	DT CALC	104.50000
M=(DP FLOW)	0.87393	M=(DP FLOW)	0.90320
AVG Q/IN	284.33333	AVG Q/IN	568.66667

100

$Q = 0.5\ kW$

X POSITION	f RELATIVE POWER	Q(x) POWER/IN	QX	DT TEMP	AIR TEMPERATURE	AIR TEMPERATURE	DT TEMP
0					75.00000	100.00000	
0-16	0.69000000	196.19000	3139.04000	4.15725	79.15725	104.02252	4.02252
16-32	1.08000000	307.08000	4913.28000	6.50700	85.66425	110.31865	6.29612
32-48	1.20000000	341.20000	5459.20000	7.23000	92.89425	117.31434	6.99569
48-64	1.19000000	338.35667	5413.70667	7.16975	100.06400	124.25174	6.93740
64-80	1.17000000	332.67000	5322.72000	7.04925	107.11325	131.07254	6.82080
80-96	1.12000000	318.45333	5095.25333	6.74800	113.86125	137.60186	6.52931
96-112	1.05000000	298.55000	4776.80000	6.32625	120.18750	143.72309	6.12123
112-128	0.90000000	255.90000	4094.40000	5.42250	125.61000	148.96986	5.24677
128-144	0.60000000	170.60000	2729.60000	3.61500	129.22500	152.46771	3.49785

0.25 kW/t
VCC

WEP-0109.003.12
ATTACHMENT 6
PAGE 1 OF 15

LIST ELEM HEAT GENERATIONS FOR ALL SELECTED ELEMENTS

ELEMENT	HEAT GENERATIONS
37	81.5000000
44	100.800000
51	98.3000000
58	92.4000000
65	64.7000000

LIST ELEMENT CONVECTIONS FOR ALL SELECTED ELEMENTS

ELEM	FACE	VALUE(S)		FACE NODES			
17	3	2.00000000	75.0000000	43	36	52	59
24	3	2.00000000	75.0000000	59	52	68	75
31	3	2.00000000	75.0000000	75	68	84	91
38	3	2.00000000	79.6000000	91	84	100	107
45	3	2.00000000	86.0000000	107	100	116	123
52	3	2.00000000	92.7000000	123	116	132	139
59	3	2.00000000	101.000000	139	132	148	155
66	3	2.00000000	107.400000	155	148	164	171
73	3	2.00000000	108.500000	171	164	180	187
80	3	2.00000000	108.500000	187	180	479	486
19	5	2.00000000	75.0000000	37	44	60	53
26	5	2.00000000	75.0000000	53	60	76	69
33	5	2.00000000	75.0000000	69	76	92	85
40	5	2.00000000	79.6000000	85	92	108	101
47	5	2.00000000	86.0000000	101	108	124	117
54	5	2.00000000	92.7000000	117	124	140	133
61	5	2.00000000	101.000000	133	140	156	149
68	5	2.00000000	107.400000	149	156	172	165
75	5	2.00000000	108.500000	165	172	188	181
82	5	2.00000000	108.500000	181	188	204	197

ELEM	FACE	VALUE(S)		FACE NODES			
171	6	2.00000000	75.0000000	215	214	221	222
172	6	2.00000000	75.0000000	450	215	222	451
164	3	2.00000000	75.0000000	191	184	200	207
96	6	2.00000000	75.0000000	230	229	236	237
95	6	2.00000000	75.0000000	229	228	235	236
94	6	2.00000000	75.0000000	228	227	234	235
93	6	2.00000000	75.0000000	227	226	233	234
92	6	2.00000000	75.0000000	226	225	233	233
153	3	2.00000000	75.0000000	15	8	24	31
154	3	2.00000000	75.0000000	31	24	40	47
155	3	2.00000000	75.0000000	47	40	56	63
156	3	2.00000000	75.0000000	63	56	72	79
157	3	2.00000000	75.0000000	79	72	88	95
158	3	2.00000000	75.0000000	95	88	104	111
159	3	2.00000000	75.0000000	111	104	120	127
160	3	2.00000000	75.0000000	127	120	136	143
161	3	2.00000000	75.0000000	143	136	152	159
162	3	2.00000000	75.0000000	159	152	168	175
163	3	2.00000000	75.0000000	175	168	184	191
165	3	2.00000000	75.0000000	207	200	216	223

ELEM	FACE	VALUE(S)		FACE NODES			
173	3	2.00000000	75.0000000	475	471	216	223
173	6	2.00000000	75.0000000	216	450	451	223
179	3	2.00000000	108.500000	489	483	196	203
176	3	2.00000000	108.500000	486	479	483	489

LIST TEMPERATURES FOR ALL SELECTED NODES

NODE	LABEL	TEMPR	
144	TEMP	75.0000000	0.000000000E+00
241	TEMP	75.0000000	0.000000000E+00

0.25 kW+

PRINT NODAL TEMPERATURES

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
1	95.170738
2	93.661774
3	89.282203
4	89.108880
5	87.946923
6	87.047136
7	82.209890
8	76.456014
9	93.661776
10	89.282155
11	89.108836
12	87.946916
13	87.047146
14	82.209888

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
15	76.456014
17	99.929654
18	98.513570
19	95.813500
20	95.376898
21	93.118218
22	92.444098
23	82.634454
24	76.508287
25	98.513565
26	95.813598
27	95.376988
28	93.118232
29	92.444076

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
30	82.634459
31	76.508288
33	100.07821
34	98.491676
35	96.029001
36	95.813588
37	92.718060
38	92.264806
39	82.720057

40	76.544236
41	98.491645
42	96.029294
43	95.813944
44	92.718007

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
45	92.264733
46	82.720073
47	76.544237
49	101.42474
50	99.055359
51	96.945670
52	96.410315
53	92.314837
54	92.170748
55	82.745168
56	76.550324
57	99.055598
58	96.947583
59	96.410594

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
60	92.314797
61	92.170627
62	82.745195
63	76.550323
65	101.55540
66	99.021581
67	97.117588
68	97.317307
69	91.881746
70	91.930275
71	82.802470
72	76.559952
73	99.021679
74	97.120775

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
75	97.310200
76	91.881795
77	91.929997
78	82.802535
79	76.559946
81	184.88016

83	106.82962
84	106.63462
85	90.624846
86	90.657363
87	83.056148
88	76.648812
90	106.59444
91	106.42578

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
92	90.622229
93	90.655956
94	83.056484
95	76.648780
97	211.14861
99	122.11759
100	121.82384
101	93.720250
102	93.686510
103	84.657050
104	76.892036
106	121.82325
107	121.56025
108	93.715479

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
109	93.683787
110	84.657698
111	76.891989
113	223.30513
115	130.25642
116	129.94740
117	98.566780
118	98.491837
119	86.399486
120	77.313932
122	129.92417
123	129.65163
124	98.561466
125	98.488840

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
126	86.400199
127	77.313877
129	229.34474

131	135.98614
132	135.76816
133	104.82502
134	104.75226
135	89.511646
136	77.789868
138	135.68364
139	135.49544
140	104.82039
141	104.74963
142	89.512270

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
143	77.789817
144	75.000000
145	209.83449
147	136.28764
148	135.77239
149	108.57126
150	108.46940
151	91.062197
152	78.040804
154	135.97172
155	135.49802
156	108.56592
157	108.46638
158	91.062915

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
159	78.040752
161	190.89510
163	122.75448
164	122.23808
165	105.92520
166	105.83464
167	89.577684
168	77.778841
170	122.53562
171	122.05409
172	105.92199
173	105.83285
174	89.578111
175	77.778808

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE TEMP

177	99.133910
178	98.996232
179	100.50884
180	100.80349
181	99.390995
182	99.259295
183	85.818362
184	77.036857
185	98.992987
186	100.53696
187	100.82154
188	99.392423
189	99.260051
190	85.818182

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
191	77.036863
193	93.033901
194	93.715922
195	93.697295
196	93.253959
197	92.569728
198	92.652285
199	81.202376
200	76.131538
201	93.715921
202	93.697283
203	93.254084
204	92.569447
205	92.652178

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
206	81.202401
207	76.131539
209	81.514549
210	83.414938
211	89.481095
212	89.893028
213	90.143781
214	89.391025
215	76.704015
216	75.698515
217	83.414937
218	89.481100
219	89.892979
220	90.143853

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1

TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
221	89.391026
222	76.704015
223	75.698514
225	81.450328
226	83.396935
227	89.349213
228	89.766721
229	90.019105
230	89.390656
233	83.396936
234	89.349213
235	89.766696
236	90.019155
237	89.390674

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
241	75.000000
242	76.982836
243	76.982835
258	77.085843
259	77.085845
274	77.125108
275	77.125115
290	77.135282
291	77.135288
306	77.143453
307	77.143450
322	77.215530
323	77.215464
338	77.625635

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
339	77.625524
354	78.134447
355	78.134322
370	78.855190
371	78.855079
386	79.216835
387	79.216710
402	78.833062
403	78.832985
418	77.791744
419	77.791777
434	76.470000
435	76.469992
450	75.961836

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
451	75.961837
468	89.608275
469	76.894937
470	75.995216
471	75.684279
472	89.608272
473	76.894937
474	75.995216
475	75.684278
476	98.598226
477	99.384988
478	98.969899
479	98.731683
480	93.642304

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 12 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
481	93.411179
482	95.154570
483	95.595377
484	99.386122
485	98.961856
486	98.728034
487	93.411209
488	95.154370
489	95.594359

MAXIMUMS

NODE	129
VALUE	229.34474

0.25 kW/t

MSB.

LIST ELEM HEAT GENERATIONS FOR ALL SELECTED ELEMENTS

ELEMENT	HEAT GENERATIONS
1	155.060000
14	155.060000
15	155.060000
18	155.060000
19	155.060000
22	155.060000
23	155.060000
27	155.060000
30	155.060000
31	155.060000
34	155.060000
35	155.060000
66	155.060000
67	155.060000
79	155.060000
300	155.060000
301	155.060000
302	155.060000
303	155.060000
304	155.060000
305	155.060000
306	155.060000
307	155.060000
308	155.060000
309	155.060000
310	155.060000
311	155.060000
312	155.060000
313	155.060000
314	155.060000
315	155.060000
316	155.060000
317	155.060000
318	155.060000
319	155.060000
320	155.060000
321	155.060000
322	155.060000
323	155.060000

LIST TEMPERATURES FOR ALL SELECTED NODES

NODE	LABEL	TEMPR	
176	TEMP	136.000000	0.000000000E+00
177	TEMP	136.000000	0.000000000E+00
178	TEMP	136.000000	0.000000000E+00
179	TEMP	136.000000	0.000000000E+00
180	TEMP	136.000000	0.000000000E+00
181	TEMP	136.000000	0.000000000E+00
188	TEMP	136.000000	0.000000000E+00
190	TEMP	136.000000	0.000000000E+00

0.25 kW/t

MSB

PRINT NODAL TEMPERATURES

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
1	245.46173
2	245.43770
3	242.87537
4	233.68362
5	233.57330
6	233.46904
7	221.41750
8	203.73283
9	203.56246
10	203.41444
11	190.20165
12	173.22085
13	172.61220
15	245.43664

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
16	242.89290
17	233.65503
18	233.57124
19	233.49062
20	221.43281
21	203.68440
22	203.55161
23	203.44019
24	190.21042
25	173.18304
26	173.13811
29	246.54400
30	229.96683
31	229.97503

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
32	230.01936
33	222.26640
34	196.21217
35	196.23466
36	196.29753
37	186.67951
38	160.32996
39	160.28187
43	219.37062

44	219.30312
45	219.17431
46	203.15854
47	180.32934
48	180.20355

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
49	180.00123
50	157.77732
51	145.53920
52	145.56642
57	219.17314
58	219.04258
59	203.17475
60	180.25719
61	179.64525
62	179.82880
63	157.77394
64	145.40558
65	144.70936
71	218.96895

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
72	203.22496
73	180.07699
74	179.89889
75	178.76129
76	157.78046
77	143.94286
85	192.84871
86	159.70882
87	159.68243
88	159.45174
89	148.23621
99	149.82342
100	149.76647
101	149.20166

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
102	138.02476
113	149.61939
114	148.75929
115	137.64095
127	148.75929
170	136.13954

171	136.08811
172	136.15979
173	136.53959
174	136.31666
175	136.30195
176	136.00000
177	136.00000
178	136.00000

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
179	136.00000
180	136.00000
181	136.00000
182	136.53451
184	136.24651
188	136.00000
190	136.00000
200	247.80075
201	247.19819
202	241.34832
203	230.07828
204	224.96658
205	214.07465
206	197.43424

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
207	191.87042
208	180.82658
211	234.82245
212	221.83040
213	215.72977
214	203.76895
215	183.41062
216	176.87745
217	165.84565
221	207.92056
222	200.41319
223	187.16854
232	168.77315
250	240.71487

***** POST1 NODAL TEMPERATURE LISTING *****

LOAD STEP 1 ITERATION= 10 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

NODE	TEMP
251	229.01436
252	212.01873
253	193.93242

254	176.58921
255	180.35154

MAXIMUMS

NODE	200
VALUE	247.80075

NORMAL FLOW PATH	D(H)	A	L	F	K	A**2	K/A**2	VEL	Re	% k/A**2
1. INLET SNOW SKIRT with screens		11.87000			0.77000	140.89690	0.00546	0.82907		0.90
2. INLET SECTION DOWN OUTSIDE	0.66700	11.87000	3.00000	0.04000	0.17991	140.89690	0.00128	0.82907	3.176E+03	0.21
3. BEND & ENTER. SKID CHANNELS		4.68000			1.38000	21.90240	0.06301	2.10279		10.43
4. SKID CHANNELS	1.08000	4.68000	5.11833	0.03000	0.14218	21.90240	0.00649	2.10279	1.304E+04	1.07
5. BEND INTO 12 IN SQ TUBE		4.00000			2.16000	16.00000	0.13500	2.46026		22.35
6. BENDS AT CHANNEL AND INLET ASSY		4.00000			0.38700	16.00000	0.02419	2.46026		4.00
7. STRAIGHT SECTION	1.00000	4.00000	1.33333	0.02600	0.03467	16.00000	0.00217	2.46026	1.413E+04	0.36
8. INLET ASSEMBLY AND BEND INTO ANN.		4.47200			1.38400	19.99878	0.06920	2.20059		11.46
9. SUDDEN EXPANSION INTO ANNULUS		5.76000			0.05000	33.17760	0.00151	1.70852		0.25
10. FLOW UP ANNULUS	0.66600	5.76000	14.16667	0.03300	0.70195	33.17760	0.02116	1.70852	6.535E+03	3.50
11. BEND&CNTRCT INTO 3" by 52" SLIT		4.33333			1.20000	18.77778	0.06391	2.27101		10.58
12. Z - BEND		4.33333			2.78000	18.77778	0.14805	2.27101		24.51
13. OUTLET STRAIGHT SECTION	1.89000	4.33333	2.66667	0.02600	0.03668	18.77778	0.00195	2.27101	2.465E+04	0.32
14. DISCHARGE with screens		4.33333			1.14000	18.77778	0.06071	2.27101		10.05

0.25 kw/assembly

SUM K/A**2	0.60408	SUM K/A**2	0.60408
INLET TEMP	75.00000	INLET TEMP	100.00000
OUTLET TEMP	108.40000	OUTLET TEMP	204.50000
AVG TEMP	91.70000	AVG TEMP	152.25000
DRAFT HEIGHT	15.00000	DRAFT HEIGHT	15.00000
GUESS DT=	33.40000	GUESS DT=	104.50000
HEAT =	20472.00000	HEAT =	81888.00000
CP=	0.24100	CP=	0.24100
M=(HEAT BALENCE)	0.70647	M=(HEAT BAL)	0.90320
AVG DENSITY	0.07179	AVG DENSITY	0.05519
DP FLOW=	0.06521	DP FLOW=	0.13865
DP STACK=	0.06519	DP STACK=	0.14130
DT CALC	33.40000	DT CALC	104.50000
M=(DP FLOW)	0.70647	M=(DP FLOW)	0.90320
AVG Q/IN	142.16667	AVG Q/IN	568.66667

100

Q = 0.25 kWt

X POSITION	f RELATIVE POWER	Q(x) POWER/IN	QX	DT TEMP	AIR TEMPERATURE	AIR TEMPERATURE	DT TEMP
0					75.00000	100.00000	
0-16	0.69000000	98.09500	1569.52000	2.57134	77.57134	102.01126	2.01126
16-32	1.08000000	153.54000	2456.64000	4.02470	81.59604	105.15932	3.14806
32-48	1.20000000	170.60000	2729.60000	4.47189	86.06793	108.65717	3.49785
48-64	1.19000000	169.17833	2706.85333	4.43462	90.50255	112.12587	3.46870
64-80	1.17000000	166.33500	2661.36000	4.36009	94.86264	115.53627	3.41040
80-96	1.12000000	159.22667	2547.62667	4.17376	99.03640	118.80093	3.26466
96-112	1.05000000	149.27500	2388.40000	3.91290	102.94931	121.86155	3.06062
112-128	0.90000000	127.95000	2047.20000	3.35392	106.30322	124.48493	2.62339
128-144	0.60000000	85.30000	1364.80000	2.23594	108.53917	126.23385	1.74892