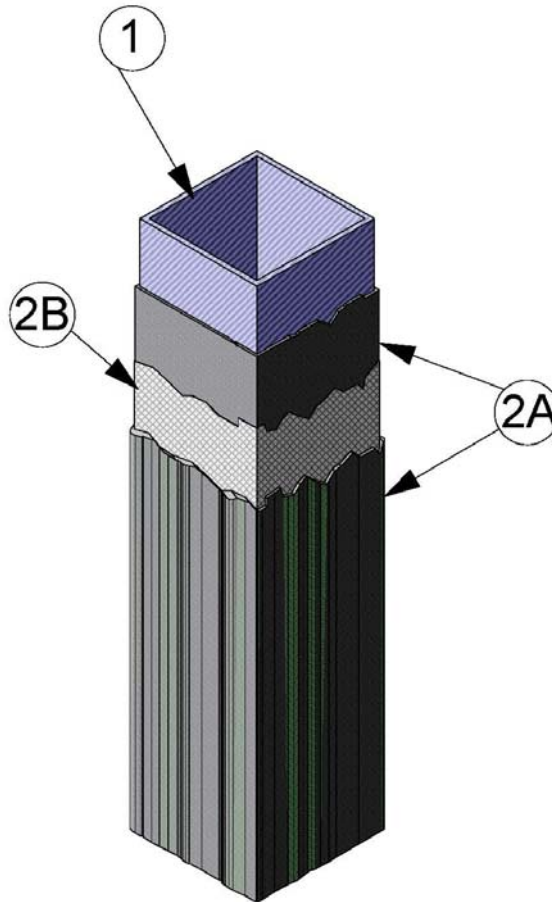

Carboline Company
CC/CA 180-03
(Formerly NUC/CA 180-03 and OPL Design No. C 304 NPD)
Column
Thermo-Lag 3000
IMO/NPD Hydrocarbon Curve
CAN/ULC S101-07
IMO/NPD Hydrocarbon Curve
Assembly Rating – See Table CC/CA 180-03



1. **HOLLOW RECTANGULAR STRUCTURAL STEEL COLUMN** - Use hollow steel sections, rectangular-shape, having nominal H_p/A , W/D , or A/P section factors based on four sided exposure. Refer to Table CC/CA 180-03 for specific application thickness of intumescent mastic fireproofing (Item 2B) based on nominal H_p/A or W/D section factors.

2. **FIRE-RESISTIVE COATING** – Refer to Table CC/CA 180-03 for specific application thickness of fire resistive coating.

A. CERTIFIED MANUFACTURER:
Carboline Company

CERTIFIED PRODUCT: Fire-resistive Coating

MODEL: Thermo-Lag 3000

Intumescent Fireproofing - Spray or paint in one or more coats according to manufacturer's instructions to a nominal 1/2 the required thickness or 3 mm) (0.12 inches) (whichever is smaller) before applying high temperature fabric (Item 2B). Spray or paint in one or more coats according to manufacturer's instructions to required final thickness after installing the high temperature fabric (Item 2B).

B. High Temperature Fabric – For final thickness of the intumescent

fireproofing (Item 2A) of 6 mm (0.24 inches) or less install high temperature fabric at middle depth of the intumescent fireproofing (Item 2A) (± 1 mm). For final thickness of the intumescent fireproofing (Item 2A) greater than 6 mm (0.24 inches), install high temperature fabric at 3 mm (0.12 inches) from solid structural steel column (Item 1) (± 1 mm). Wrap high temperature fabric completely around hollow rectangular steel structural column (Item 1). Overlap high temperature fabric a minimum 26 mm (1-inch) at seams.

This Listing is based upon the hydrocarbon fire time-temperature curve conditions required by the International Maritime Organization. The Norwegian Petroleum Directorate, NPD, also defines this exposure.

Table CC/CA 180-03											
Data Based on 538°C (1000°F) Average											
HP/A	W/D	60 min.		90 min.		120 min.		150 min.		180 min.	
1/m	lb/ft/in	mm	in	mm	in	mm	in	mm	in	mm	in
22	6.08	3.2	0.13	3.2	0.13	3.2	0.13	3.3	0.13	4.3	0.17
25	5.35	3.2	0.13	3.2	0.13	3.2	0.13	3.7	0.15	4.8	0.19
30	4.46	3.2	0.13	3.2	0.13	3.2	0.13	4.3	0.17	5.6	0.22
35	3.82	3.2	0.13	3.2	0.13	3.5	0.14	4.9	0.19	6.4	0.25
40	3.34	3.2	0.13	3.2	0.13	3.9	0.15	5.5	0.22	7.1	0.28
45	2.97	3.2	0.13	3.2	0.13	4.2	0.17	6.0	0.24	7.8	0.31
50	2.67	3.2	0.13	3.2	0.13	4.6	0.18	6.5	0.26	8.5	0.33
55	2.43	3.2	0.13	3.2	0.13	5.0	0.20	7.0	0.28	9.1	0.36
60	2.23	3.2	0.13	3.2	0.13	5.3	0.21	7.5	0.30	9.7	0.38
65	2.06	3.2	0.13	3.2	0.13	5.6	0.22	8.0	0.31	10.3	0.41
70	1.91	3.2	0.13	3.4	0.13	5.9	0.23	8.4	0.33	10.9	0.43
75	1.78	3.2	0.13	3.6	0.14	6.2	0.24	8.8	0.35	11.4	0.45
80	1.67	3.2	0.13	3.8	0.15	6.5	0.26	9.2	0.36	11.9	0.47
85	1.57	3.2	0.13	3.9	0.15	6.8	0.27	9.6	0.38	12.4	0.49
90	1.49	3.2	0.13	4.1	0.16	7.0	0.28	9.9	0.39	12.9	0.51
95	1.41	3.2	0.13	4.2	0.17	7.3	0.29	10.3	0.41	13.3	0.52
100	1.34	3.2	0.13	4.4	0.17	7.5	0.30	10.6	0.42	13.8	0.54
110	1.22	3.2	0.13	4.6	0.18	8.0	0.31	11.3	0.44	14.6	0.57
120	1.11	3.2	0.13	4.9	0.19	8.4	0.33	11.9	0.47	15.4	0.61
130	1.03	3.2	0.13	5.1	0.20	8.8	0.35	12.4	0.49	16.1	0.63
140	0.95	3.2	0.13	5.3	0.21	9.2	0.36	13.0	0.51	16.8	0.66
150	0.89	3.2	0.13	5.5	0.22	9.5	0.37	13.5	0.53	17.4	0.69
160	0.84	3.2	0.13	5.7	0.22	9.8	0.39	13.9	0.55	18.0	0.71
170	0.79	3.2	0.13	5.9	0.23	10.1	0.40	14.4	0.57	18.6	0.73
180	0.74	3.2	0.13	6.1	0.24	10.4	0.41	14.8	0.58	19.1	0.75
190	0.7	3.2	0.13	6.2	0.24	10.7	0.42	15.2	0.60	19.6	0.77
200	0.67	3.2	0.13	6.4	0.25	10.9	0.43	15.5	0.61		
210	0.64	3.2	0.13	6.5	0.26	11.2	0.44	15.9	0.63		