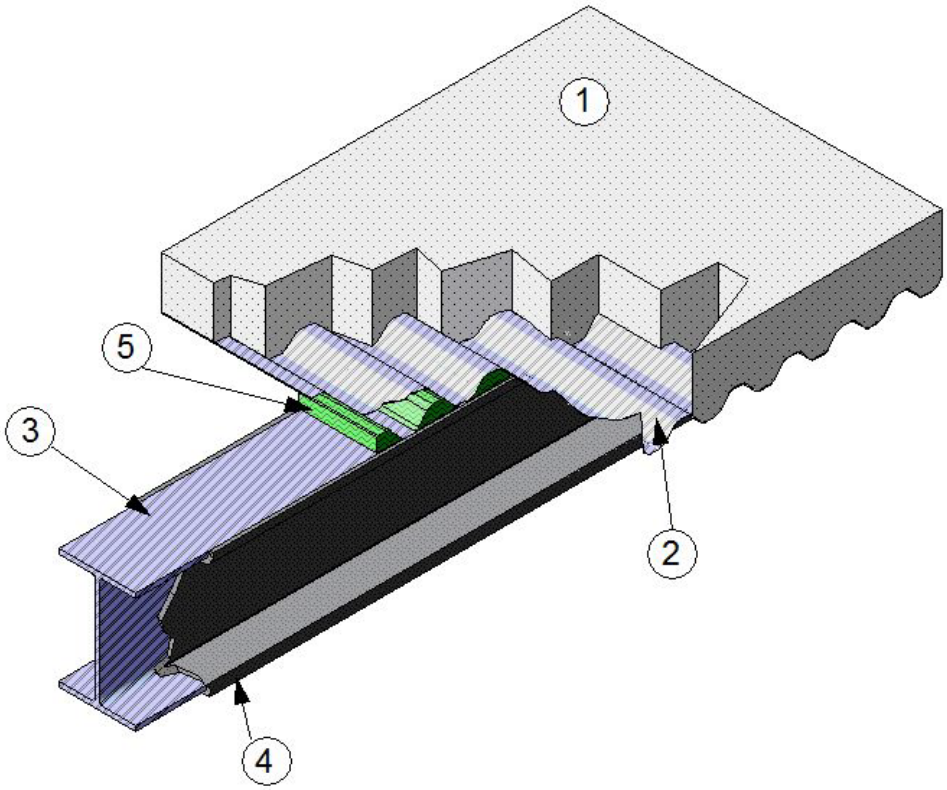
Sherwin-Williams Protective & Marine Coatings
Design No. SWC/IF 240-04
Un-restrained and Restrained Beam
FIRETEX™ FX9502
ASTM E119/CAN-ULC-S101
Restricted Load Maximum 65% of Design Load
Assembly Rating: See Table 1 and Table 2



1. **FLOOR/CEILING ASSEMBLY:** Use a fire-rated floor/ceiling assembly consisting of normal weight or lightweight (min. 105 pcf, 3000psi) reinforced concrete. Thickness of concrete floor/ceiling assembly must comply with designated fire resistive rating. The concrete thickness shall not be less than 2-1/2 in. thick as measured from the upper most surface of the Steel Floor and Form Units (Item 2).

   LOAD CONDITION: Loading is to be determined by the Load and Resistance Factor Design (LRFD) Method or the Allowable Stress Design (ASD) Method published by the American Institute of Steel Construction (AISC).

2. **STEEL FLOOR AND FORM UNITS:** Corrugated steel decking, min. 1-1/2 in. deep (38 mm), min. 22 GA.

   A. SHEAR CONNECTORS – (Not Shown) Install shear connectors, 3/4 in. diameter x min. 3-1/2 in. long, through the Steel Floor and Form Unit (Item 2) and welded to the top flange of each Structural Steel Beam (Item 3).
   B. WELDED WIRE MESH – (Not Shown) Install min. 6x6 W1.4xW1.4 (formerly 6x6-10/10) mesh, welded to the top of the shear connectors (Item 2A). Location of the welded wire mesh is at mid-height between the top of the Steel Floor and Form Unit (Item 2) and the top of the concrete Floor/Ceiling Assembly (Item 1).

3. **STEEL STRUCTURAL BEAM:** Use solid steel sections, I-shape or W-shape, having nominal Hp/A, W/D, or A/P section factors based on three-sided exposure.

4. **FIRE-RESISTIVE COATING**: Refer to Tables 1 and 2 for specific application thickness of fire resistive coatings.

   CERTIFIED MANUFACTURER: Sherwin-Williams Protective & Marine Coatings

   CERTIFIED PRODUCT: Fire Resistive Coating
   CERTIFIED MODEL: FIRETEX™ FX9502

   APPLICATION: Blast and clean structural steel per the manufacturer's instructions. Use Sherwin-Williams FIRETEX™ C69 Fast-Tack Blast Primer (not shown) per the manufacturer's instructions. Spray-apply FIRETEX™ FX9502 Fire Resistive Coating onto primed steel to the required final thicknesses per the manufacturer's instructions.

5. **INSULATION:** Use non-combustible mineral wool, refractory ceramic fiber, or alkaline earth silicate, high-temperature fiber insulation to completely fill the voids created between the Steel Floor and Form Units (Item 2) and the Steel Structural Beam (Item 3). Use min. 4 pcf density insulation, determined to be non-combustible in accordance with one of the following standards:
   - ASTM E136
   - CAN/ULC-S114
   - EN ISO 1182.

Table 1. SWC/IF 240-04 Un-restrained Beams - Fire Resistance Time in Minutes

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.
70	1.91	0.69	0.027	2.07	0.081	3.44	0.135	4.81	0.189	6.18	0.243
75	1.79	0.69	0.027	2.07	0.081	3.44	0.135	4.81	0.189	6.18	0.243
80	1.67	0.71	0.028	2.10	0.083	3.48	0.137	4.86	0.192	6.25	0.246
85	1.58	0.76	0.030	2.17	0.085	3.58	0.141	4.99	0.197	6.40	0.252
90	1.49	0.81	0.032	2.25	0.088	3.68	0.145	5.12	0.202	6.55	0.258
95	1.41	0.86	0.034	2.32	0.091	3.78	0.149	5.24	0.206	6.71	0.264
100	1.34	0.90	0.036	2.39	0.094	3.88	0.153	5.37	0.211	6.86	0.270
105	1.28	0.95	0.038	2.47	0.097	3.98	0.157	5.50	0.216	7.01	0.276
110	1.22	1.00	0.039	2.54	0.100	4.08	0.161	5.62	0.221	7.17	0.282
115	1.16	1.05	0.041	2.62	0.103	4.18	0.165	5.75	0.226	7.32	0.288
120	1.12	1.10	0.043	2.69	0.106	4.28	0.169	5.88	0.231	7.47	0.294
125	1.07	1.14	0.045	2.76	0.109	4.38	0.173	6.00	0.236	7.63	0.300
130	1.03	1.19	0.047	2.84	0.112	4.49	0.177	6.13	0.241	7.78	0.306
135	0.99	1.24	0.049	2.91	0.115	4.59	0.181	6.26	0.246	7.93	0.312
140	0.96	1.29	0.051	2.99	0.118	4.69	0.184	6.38	0.251	8.08	0.318
145	0.92	1.34	0.053	3.06	0.121	4.79	0.188	6.51	0.256	8.24	0.324
150	0.89	1.38	0.054	3.14	0.123	4.89	0.192	6.64	0.261	8.39	0.330
155	0.86	1.43	0.056	3.21	0.126	4.99	0.196	6.76	0.266	8.54	0.336
160	0.84	1.48	0.058	3.28	0.129	5.09	0.200	6.89	0.271	8.70	0.342
165	0.81	1.53	0.060	3.36	0.132	5.19	0.204	7.02	0.276	8.85	0.348
170	0.79	1.58	0.062	3.43	0.135	5.29	0.208	7.14	0.281	9.00	0.354
175	0.77	1.62	0.064	3.51	0.138	5.39	0.212	7.27	0.286	9.15	0.360
180	0.74	1.67	0.066	3.58	0.141	5.49	0.216	7.40	0.291	9.31	0.366
185	0.72	1.72	0.068	3.65	0.144	5.59	0.220	7.52	0.296	9.46	0.372
190	0.71	1.77	0.070	3.73	0.147	5.69	0.224	7.65	0.301	9.61	0.378
195	0.69	1.81	0.071	3.80	0.150	5.79	0.228	7.78	0.306	9.77	0.384
200	0.67	1.86	0.073	3.88	0.153	5.89	0.232	7.90	0.311	9.92	0.391
205	0.65	1.91	0.075	3.95	0.156	5.99	0.236	8.03	0.316	10.07	0.397
210	0.64	1.96	0.077	4.02	0.158	6.09	0.240	8.16	0.321	10.22	0.403
215	0.62	2.01	0.079	4.10	0.161	6.19	0.244	8.28	0.326	10.38	0.409
220	0.61	2.05	0.081	4.17	0.164	6.29	0.248	8.41	0.331	10.53	0.415
225	0.6	2.10	0.083	4.25	0.167	6.39	0.252	8.54	0.336	10.68	0.421
230	0.58	2.15	0.085	4.32	0.170	6.49	0.256	8.66	0.341	10.84	0.427
235	0.57	2.20	0.087	4.40	0.173	6.59	0.260	8.79	0.346	10.99	0.433

Table 1. SWC/IF 240-04 Un-restrained Beams - Fire Resistance Time in Minutes (Continued)

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.
240	0.56	2.25	0.088	4.47	0.176	6.69	0.264	8.92	0.351	11.14	0.439
245	0.55	2.29	0.090	4.54	0.179	6.79	0.267	9.04	0.356	11.30	0.445
250	0.54	2.34	0.092	4.62	0.182	6.89	0.271	9.17	0.361	11.45	0.451
255	0.53	2.39	0.094	4.69	0.185	7.00	0.275	9.30	0.366	11.60	0.457
260	0.52	2.44	0.096	4.77	0.188	7.10	0.279	9.42	0.371	11.75	0.463
265	0.51	2.48	0.098	4.84	0.191	7.20	0.283	9.55	0.376	11.91	0.469
270	0.5	2.53	0.100	4.91	0.193	7.30	0.287	9.68	0.381	12.06	0.475
275	0.49	2.58	0.102	4.99	0.196	7.40	0.291	9.80	0.386	12.21	0.481
280	0.48	2.63	0.103	5.06	0.199	7.50	0.295	9.93	0.391	12.37	0.487
285	0.47	2.68	0.105	5.14	0.202	7.60	0.299	10.06	0.396	12.52	0.493
290	0.46	2.72	0.107	5.21	0.205	7.70	0.303	10.18	0.401	12.67	0.499
295	0.45	2.77	0.109	5.29	0.208	7.80	0.307	10.31	0.406	12.82	0.505
300	0.45	2.82	0.111	5.36	0.211	7.90	0.311	10.44	0.411	12.98	0.511
305	0.44	2.87	0.113	5.43	0.214	8.00	0.315	10.56	0.416	13.13	0.517
310	0.43	2.92	0.115	5.51	0.217	8.10	0.319	10.69	0.421	13.28	0.523
315	0.43	2.96	0.117	5.58	0.220	8.20	0.323	10.82	0.426	13.44	0.529
320	0.42	3.01	0.119	5.66	0.223	8.30	0.327	10.94	0.431	13.59	0.535
325	0.41	3.06	0.120	5.73	0.226	8.40	0.331	11.07	0.436	13.74	0.541
330	0.41	3.11	0.122	5.80	0.229	8.50	0.335	11.20	0.441	13.90	0.547
335	0.4	3.15	0.124	5.88	0.231	8.60	0.339	11.32	0.446	14.05	0.553
340	0.39	3.20	0.126	5.95	0.234	8.70	0.343	11.45	0.451	14.20	0.559
345	0.39	3.25	0.128	6.03	0.237	8.80	0.347	11.58	0.456	14.35	0.565
350	0.38	3.30	0.130	6.10	0.240	8.90	0.351	11.70	0.461	14.51	0.571
355	0.38	3.35	0.132	6.17	0.243	9.00	0.354	11.83	0.466	14.66	0.577
360	0.37	3.39	0.134	6.25	0.246	9.10	0.358	11.96	0.471	14.81	0.583

Table 2. SWC/IF 240-04 Restrained Beams - Fire Resistance Time in Minutes

HP/A	W/D	60 min		90 min		120 min		150 min		180 min		210 min		240 min	
1/m	lb/ft/in	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
70	1.91	0.69	0.027	1.50	0.059	2.88	0.113	4.25	0.167	5.63	0.222	7.01	0.276		
75	1.79	0.69	0.027	1.50	0.059	2.88	0.113	4.25	0.167	5.63	0.222	7.01	0.276		
80	1.67	0.71	0.028	1.50	0.060	2.91	0.115	4.30	0.169	5.69	0.224	7.08	0.279		
85	1.58	0.76	0.030	1.52	0.062	2.99	0.118	4.40	0.173	5.82	0.229	7.24	0.285		
90	1.49	0.81	0.032	1.57	0.064	3.07	0.121	4.51	0.178	5.95	0.234	7.39	0.291		
95	1.41	0.86	0.034	1.63	0.066	3.15	0.124	4.62	0.182	6.08	0.240	7.55	0.297		
100	1.34	0.90	0.036	1.68	0.068	3.23	0.127	4.72	0.186	6.22	0.245	7.71	0.304		
105	1.28	0.95	0.038	1.74	0.070	3.31	0.130	4.83	0.190	6.35	0.250	7.87	0.310		
110	1.22	1.00	0.039	1.79	0.073	3.39	0.133	4.94	0.194	6.48	0.255	8.03	0.316		
115	1.16	1.05	0.041	1.84	0.075	3.47	0.137	5.04	0.199	6.61	0.260	8.19	0.322		
120	1.12	1.10	0.043	1.90	0.077	3.55	0.140	5.15	0.203	6.75	0.266	8.35	0.329		
125	1.07	1.14	0.045	1.95	0.079	3.63	0.143	5.25	0.207	6.88	0.271	8.50	0.335		
130	1.03	1.19	0.047	2.00	0.081	3.71	0.146	5.36	0.211	7.01	0.276	8.66	0.341		
135	0.99	1.24	0.049	2.06	0.083	3.79	0.149	5.47	0.215	7.14	0.281	8.82	0.347		
140	0.96	1.29	0.051	2.11	0.085	3.87	0.152	5.57	0.219	7.28	0.286	8.98	0.354		
145	0.92	1.34	0.053	2.17	0.087	3.95	0.156	5.68	0.224	7.41	0.292	9.14	0.360		
150	0.89	1.38	0.054	2.22	0.090	4.03	0.159	5.79	0.228	7.54	0.297	9.30	0.366		
155	0.86	1.43	0.056	2.27	0.092	4.11	0.162	5.89	0.232	7.67	0.302	9.46	0.372		
160	0.84	1.48	0.058	2.33	0.094	4.19	0.165	6.00	0.236	7.81	0.307	9.61	0.379		
165	0.81	1.53	0.060	2.38	0.096	4.27	0.168	6.10	0.240	7.94	0.313	9.77	0.385		
170	0.79	1.58	0.062	2.44	0.098	4.35	0.171	6.21	0.245	8.07	0.318	9.93	0.391		
175	0.77	1.62	0.064	2.49	0.100	4.43	0.174	6.32	0.249	8.20	0.323	10.09	0.397		
180	0.74	1.67	0.066	2.54	0.102	4.51	0.178	6.42	0.253	8.34	0.328	10.25	0.403		
185	0.72	1.72	0.068	2.60	0.104	4.59	0.181	6.53	0.257	8.47	0.333	10.41	0.410		
190	0.71	1.77	0.070	2.65	0.107	4.67	0.184	6.64	0.261	8.60	0.339	10.57	0.416		
195	0.69	1.81	0.071	2.71	0.109	4.75	0.187	6.74	0.265	8.73	0.344	10.72	0.422		
200	0.67	1.86	0.073	2.76	0.111	4.83	0.190	6.85	0.270	8.87	0.349	10.88	0.428		
205	0.65	1.91	0.075	2.81	0.113	4.91	0.193	6.95	0.274	9.00	0.354	11.04	0.435		
210	0.64	1.96	0.077	2.87	0.115	4.99	0.196	7.06	0.278	9.13	0.359	11.20	0.441		
215	0.62	2.01	0.079	2.92	0.117	5.07	0.200	7.17	0.282	9.26	0.365	11.36	0.447		
220	0.61	2.05	0.081	2.98	0.119	5.15	0.203	7.27	0.286	9.40	0.370	11.52	0.453		
225	0.6	2.10	0.083	3.03	0.121	5.23	0.206	7.38	0.291	9.53	0.375	11.68	0.460		
230	0.58	2.15	0.085	3.08	0.124	5.31	0.209	7.49	0.295	9.66	0.380	11.83	0.466		

Table 2. SWC/IF 240-04 Restrained Beams - Fire Resistance Time in Minutes (Continued)

HP/A	W/D	60 min		90 min		120 min		150 min		180 min		210 min		240 min	
1/m	lb/ft/in	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
235	0.57	2.20	0.087	3.14	0.126	5.39	0.212	7.59	0.299	9.79	0.386	11.99	0.472		
240	0.56	2.25	0.088	3.19	0.128	5.47	0.215	7.70	0.303	9.92	0.391	12.15	0.478		
245	0.55	2.29	0.090	3.24	0.130	5.55	0.219	7.80	0.307	10.06	0.396	12.31	0.485		
250	0.54	2.34	0.092	3.30	0.132	5.63	0.222	7.91	0.311	10.19	0.401	12.47	0.491		
255	0.53	2.39	0.094	3.35	0.134	5.71	0.225	8.02	0.316	10.32	0.406	12.63	0.497		
260	0.52	2.44	0.096	3.41	0.136	5.79	0.228	8.12	0.320	10.45	0.412	12.79	0.503		
265	0.51	2.48	0.098	3.46	0.138	5.87	0.231	8.23	0.324	10.59	0.417	12.94	0.510		
270	0.5	2.53	0.100	3.51	0.140	5.95	0.234	8.34	0.328	10.72	0.422	13.10	0.516		
275	0.49	2.58	0.102	3.57	0.143	6.03	0.237	8.44	0.332	10.85	0.427	13.26	0.522		
280	0.48	2.63	0.103	3.62	0.145	6.11	0.241	8.55	0.337	10.98	0.432	13.42	0.528		
285	0.47	2.68	0.105	3.68	0.147	6.19	0.244	8.65	0.341	11.12	0.438	13.58	0.535		
290	0.46	2.72	0.107	3.73	0.149	6.27	0.247	8.76	0.345	11.25	0.443	13.74	0.541		
295	0.45	2.77	0.109	3.78	0.151	6.35	0.250	8.87	0.349	11.38	0.448	13.90	0.547		
300	0.45	2.82	0.111	3.84	0.153	6.43	0.253	8.97	0.353	11.51	0.453	14.05	0.553		
305	0.44	2.87	0.113	3.89	0.155	6.51	0.256	9.08	0.357	11.65	0.459	14.21	0.560		
310	0.43	2.92	0.115	3.95	0.157	6.59	0.260	9.19	0.362	11.78	0.464	14.37	0.566		
315	0.43	2.96	0.117	4.00	0.160	6.67	0.263	9.29	0.366	11.91	0.469	14.53	0.572		
320	0.42	3.01	0.119	4.05	0.162	6.75	0.266	9.40	0.370	12.04	0.474	14.69	0.578		
325	0.41	3.06	0.120	4.11	0.164	6.83	0.269	9.50	0.374	12.18	0.479	14.85	0.585		
330	0.41	3.11	0.122	4.16	0.166	6.91	0.272	9.61	0.378	12.31	0.485	15.01	0.591		
335	0.4	3.15	0.124	4.22	0.168	6.99	0.275	9.72	0.383	12.44	0.490	15.16	0.597		
340	0.39	3.20	0.126	4.27	0.170	7.07	0.278	9.82	0.387	12.57	0.495	15.32	0.603		
345	0.39	3.25	0.128	4.32	0.172	7.15	0.282	9.93	0.391	12.71	0.500	15.48	0.610		
350	0.38	3.30	0.130	4.38	0.174	7.23	0.285	10.04	0.395	12.84	0.505	15.64	0.616		
355	0.38	3.35	0.132	4.43	0.177	7.31	0.288	10.14	0.399	12.97	0.511	15.80	0.622		
360*	0.37	3.39	0.134	4.48	0.179	7.39	0.291	10.25	0.403	13.10	0.516	15.96	0.628	18.81	0.741

* Coating thickness for 240 minutes may be applied to beam sizes with Hp/A less than 360.

Consult the listing report on the Directory of Building Products (https://bpdirectory.intertek.com) for the edition of the standard(s) evaluated.

Compliance of the assembly described in this Design Listing with the referenced standard relies on verification that the assembly constructed in the field is consistent with that described herein. Intertek certified products may be verified by the approved Intertek label; other products must be verified by the Authority Having Jurisdiction as meeting the specifications stated herein.