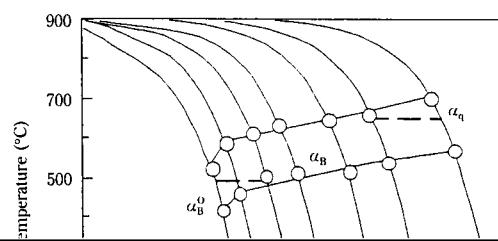
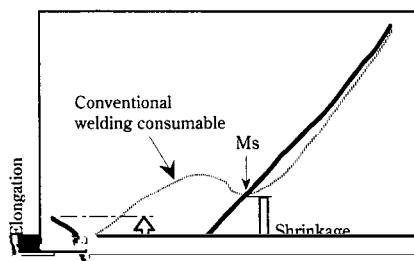
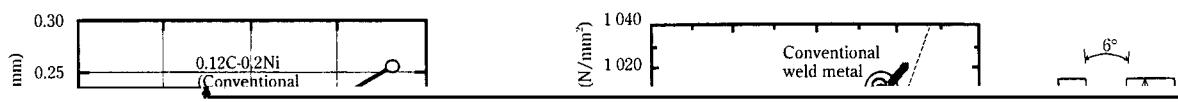


# Development of High Performance Steel Plates for Reliable and Economical Steel Structures\*

## *Synopsis:*

*Steel structures are now evaluated from the viewpoint*





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## Deposited metal tests

Steel	C	Si	Mn	P	S	Al	Cu	Ni	Nb
TM1	0.07	0.11	1.45	0.010	0.001	0.035	0.26	0.73	0.012

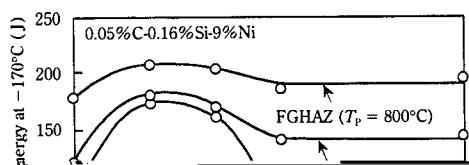


Table 1 Results of V-notch Charpy absorbed energy at the mid-thickness of 110 mm thick SCMV4 steel

Case	Homogenizing treatment	Forging ratio (%)		vTrs
		Widethwise	Thicknesswise	

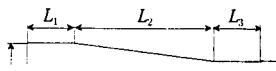
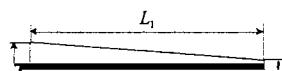
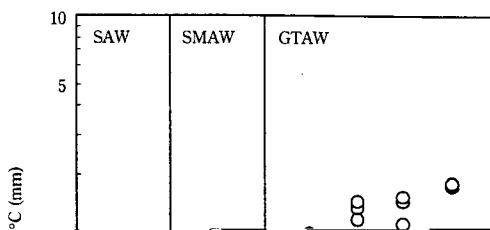


Table 2 Production data of extremely-low C bainitic steel plates

Plate No.	Date	Thickness (mm)	Width (mm)	Length (mm)	Weight (kg/m <sup>3</sup> )	Yield Strength (MPa)	Tensile Strength (MPa)	Impact Strength (J)	Hardness (HV)
1	2023-01-01	12	1500	6000	7.8	235	460	27	220
2	2023-01-02	15	1500	6000	7.8	235	460	25	220
3	2023-01-03	18	1500	6000	7.8	235	460	23	220
4	2023-01-04	20	1500	6000	7.8	235	460	22	220
5	2023-01-05	22	1500	6000	7.8	235	460	20	220
6	2023-01-06	25	1500	6000	7.8	235	460	18	220
7	2023-01-07	28	1500	6000	7.8	235	460	16	220
8	2023-01-08	30	1500	6000	7.8	235	460	15	220
9	2023-01-09	32	1500	6000	7.8	235	460	14	220
10	2023-01-10	35	1500	6000	7.8	235	460	13	220
11	2023-01-11	38	1500	6000	7.8	235	460	12	220
12	2023-01-12	40	1500	6000	7.8	235	460	11	220
13	2023-01-13	42	1500	6000	7.8	235	460	10	220
14	2023-01-14	45	1500	6000	7.8	235	460	9	220
15	2023-01-15	48	1500	6000	7.8	235	460	8	220
16	2023-01-16	50	1500	6000	7.8	235	460	7	220
17	2023-01-17	52	1500	6000	7.8	235	460	6	220
18	2023-01-18	55	1500	6000	7.8	235	460	5	220
19	2023-01-19	58	1500	6000	7.8	235	460	4	220
20	2023-01-20	60	1500	6000	7.8	235	460	3	220
21	2023-01-21	62	1500	6000	7.8	235	460	2	220
22	2023-01-22	65	1500	6000	7.8	235	460	1	220
23	2023-01-23	68	1500	6000	7.8	235	460	0	220
24	2023-01-24	70	1500	6000	7.8	235	460	-	220
25	2023-01-25	72	1500	6000	7.8	235	460	-	220
26	2023-01-26	75	1500	6000	7.8	235	460	-	220
27	2023-01-27	78	1500	6000	7.8	235	460	-	220
28	2023-01-28	80	1500	6000	7.8	235	460	-	220
29	2023-01-29	82	1500	6000	7.8	235	460	-	220
30	2023-01-30	85	1500	6000	7.8	235	460	-	220
31	2023-01-31	88	1500	6000	7.8	235	460	-	220
32	2023-02-01	90	1500	6000	7.8	235	460	-	220
33	2023-02-02	92	1500	6000	7.8	235	460	-	220
34	2023-02-03	95	1500	6000	7.8	235	460	-	220
35	2023-02-04	98	1500	6000	7.8	235	460	-	220
36	2023-02-05	100	1500	6000	7.8	235	460	-	220
37	2023-02-06	102	1500	6000	7.8	235	460	-	220
38	2023-02-07	105	1500	6000	7.8	235	460	-	220
39	2023-02-08	108	1500	6000	7.8	235	460	-	220
40	2023-02-09	110	1500	6000	7.8	235	460	-	220
41	2023-02-10	112	1500	6000	7.8	235	460	-	220
42	2023-02-11	115	1500	6000	7.8	235	460	-	220
43	2023-02-12	118	1500	6000	7.8	235	460	-	220
44	2023-02-13	120	1500	6000	7.8	235	460	-	220
45	2023-02-14	122	1500	6000	7.8	235	460	-	220
46	2023-02-15	125	1500	6000	7.8	235	460	-	220
47	2023-02-16	128	1500	6000	7.8	235	460	-	220
48	2023-02-17	130	1500	6000	7.8	235	460	-	220
49	2023-02-18	132	1500	6000	7.8	235	460	-	220
50	2023-02-19	135	1500	6000	7.8	235	460	-	220
51	2023-02-20	138	1500	6000	7.8	235	460	-	220
52	2023-02-21	140	1500	6000	7.8	235	460	-	220
53	2023-02-22	142	1500	6000	7.8	235	460	-	220
54	2023-02-23	145	1500	6000	7.8	235	460	-	220
55	2023-02-24	148	1500	6000	7.8	235	460	-	220
56	2023-02-25	150	1500	6000	7.8	235	460	-	220
57	2023-02-26	152	1500	6000	7.8	235	460	-	220
58	2023-02-27	155	1500	6000	7.8	235	460	-	220
59	2023-02-28	158	1500	6000	7.8	235	460	-	220
60	2023-02-29	160	1500	6000	7.8	235	460	-	220
61	2023-03-01	162	1500	6000	7.8	235	460	-	220
62	2023-03-02	165	1500	6000	7.8	235	460	-	220
63	2023-03-03	168	1500	6000	7.8	235	460	-	220
64	2023-03-04	170	1500	6000	7.8	235	460	-	220
65	2023-03-05	172	1500	6000	7.8	235	460	-	220
66	2023-03-06	175	1500	6000	7.8	235	460	-	220
67	2023-03-07	178	1500	6000	7.8	235	460	-	220
68	2023-03-08	180	1500	6000	7.8	235	460	-	220
69	2023-03-09	182	1500	6000	7.8	235	460	-	220
70	2023-03-10	185	1500	6000	7.8	235	460	-	220
71	2023-03-11	188	1500	6000	7.8	235	460	-	220
72	2023-03-12	190	1500	6000	7.8	235	460	-	220
73	2023-03-13	192	1500	6000	7.8	235	460	-	220
74	2023-03-14	195	1500	6000	7.8	235	460	-	220
75	2023-03-15	198	1500	6000	7.8	235	460	-	220
76	2023-03-16	200	1500	6000	7.8	235	460	-	220
77	2023-03-17	202	1500	6000	7.8	235	460	-	220
78	2023-03-18	205	1500	6000	7.8	235	460	-	220
79	2023-03-19	208	1500	6000	7.8	235	460	-	220
80	2023-03-20	210	1500	6000	7.8	235	460	-	220
81	2023-03-21	212	1500	6000	7.8	235	460	-	220
82	2023-03-22	215	1500	6000	7.8	235	460	-	220
83	2023-03-23	218	1500	6000	7.8	235	460	-	220
84	2023-03-24	220	1500	6000	7.8	235	460	-	220
85	2023-03-25	222	1500	6000	7.8	235	460	-	220
86	2023-03-26	225	1500	6000	7.8	235	460	-	220
87	2023-03-27	228	1500	6000	7.8	235	460	-	220
88	2023-03-28	230	1500	6000	7.8	235	460	-	220
89	2023-03-29	232	1500	6000	7.8	235	460	-	220
90	2023-03-30	235	1500	6000	7.8	235	460	-	220
91	2023-03-31	238	1500	6000	7.8	235	460	-	220
92	2023-04-01	240	1500	6000	7.8	235	460	-	220
93	2023-04-02	242	1500	6000	7.8	235	460	-	220
94	2023-04-03	245	1500	6000	7.8	235	460	-	220
95	2023-04-04	248	1500	6000	7.8	235	460	-	220
96	2023-04-05	250	1500	6000	7.8	235	460	-	220
97	2023-04-06	252	1500	6000	7.8	235	460	-	220
98	2023-04-07	255	1500	6000	7.8	235	460	-	220
99	2023-04-08	258	1500	6000	7.8	235	460	-	220
100	2023-04-09	260	1500	6000	7.8	235	460	-	220
101	2023-04-10	262	1500	6000	7.8	235	460	-	220
102	2023-04-11	265	1500	6000	7.8	235	460	-	220
103	2023-04-12	268	1500	6000	7.8	235	460	-	220
104	2023-04-13	270	1500	6000	7.8	235	460	-	220
105	2023-04-14	272	1500	6000	7.8	235	460	-	220
106	2023-04-15	275	1500	6000	7.8	235	460	-	220
107	2023-04-16	278	1500	6000	7.8	235	460	-	220
108	2023-04-17	280	1500	6000	7.8	235	460	-	220
109	2023-04-18	282	1500	6000	7.8	235	460	-	220
110	2023-04-19	285	1500	6000	7.8	235	460	-	220
111	2023-04-20	288	1500	6000	7.8	235	460	-	220
112	2023-04-21	290	1500	6000	7.8	235	460	-	220
113	2023-04-22	292	1500	6000	7.8	235	460	-	220
114	2023-04-23	295	1500	6000	7.8	235	460	-	220
115	2023-04-24	298	1500	6000	7.8	235	460	-	220
116	2023-04-25	300	1500	6000	7.8	235	460	-	220
117	2023-04-26	302	1500	6000	7.8	235	460	-	220
118	2023-04-27	305	1500	6000	7.8	235	460	-	220
119	2023-04-28	308	1500	6000	7.8	235	460	-	220
120	2023-04-29	310	1500	6000	7.8	235	460	-	220
121	2023-04-30	312	1500	6000	7.8	235	460	-	220
122	2023								

### 3.3 Building Structural Steels

Vibration-damping design which uses vibration dampers is receiving attention as a technique to improve the seismic-resistance of buildings. Many hysteresis-type dampers of attenuation strain made of low yield point steels have been developed that are stable, eco-



~~Notes that minimize the LCC of structures and for now~~

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