DATA SHEET

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Title:	RAIL SIZE
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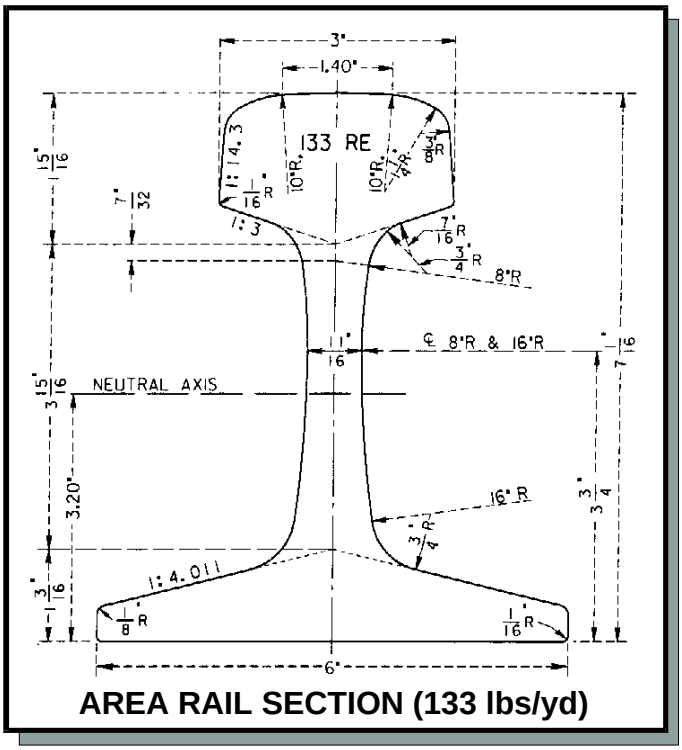
INTRODUCTION

In the very beginning rails were made of wood. For horse drawn trams, this was perfectly acceptable. With the invention of the steam engine, in an effort to cope with the additional weight requirements, iron straps were added to the top of the wooden rails. The next evolution was rail made of iron shaped like an inverted "U." Finally, the rail configuration we have today was introduced in the early 1800's.

Rail is measured in pounds per yard. Thus, a three foot section of 100 pound rail would weigh 100 Lbs. The larger the rail, the more train weight it can handle. The Pennsy, known for setting their own standards for everything, has the honor of developing the heaviest rail in the industry. Their 152 pound rail was used for the main lines over the Allegheny Mountains. It is not unusual to find narrow gauge operations using rail in the 30-70 pound range. Standard gauge main line operations today typically use 132 or 136 pound rail. Mining and light industrial operations account for the very small rail sizes. Prototype rail size (Lbs/yd) is typically marked on the web of the rail. Rail size can also be approximated by measuring the height of the rail from base to crown, with a combination square, and comparing it with the dimensions shown on the rail size chart.



AREA RAIL SECTION (133 lbs/yd)

On a given railroad, one rail size is not generally used for all purposes. A typical application observed on the NS in Atlanta, was 136# rail for the main line. Once clear of the turnout into an industry, the rail was reduced to 115# for one rail length, then further reduced to 85# to serve the industry. Yard tracks are much the same, typically of a smaller rail size than the main line associated with it. It is not unusual for a main line sporting 132# rail to have passing sidings laid with 115# rail. In the case of a passing siding, the heavier rail is used through the turnout until the tracks are parallel, then reduced. Rail joints are staggered, so for half a rail length during the transition, the left rail may be 132# while the right rail is reduced to 115#. The transition is done with special joint bars that keep the top of the rail even and line up the inside running surfaces. The difference in rail height is adjusted by tamping additional ballast under the ties on the side supporting the smaller rail.

The manufacturers of model rail rate it in codes associated with the height of the rail. Typical model rail sizes range from code 40 (0.040" high) to code 350 (0.350" high). Based on the scale in which you model, the attached data will help you to choose the proper size commercial rail to represent the prototype rail you wish to model.

INTRODUCTION - continued

A typical model railroad might use code 83 rail to represent 132 pound rail for the heavy duty main lines where ore is hauled. Other main lines might be laid with code 70 representing 110 pound rail. Code 55 could be used to model the 80 pound rail used on lightly traveled branch lines and spurs.

RAIL SIZE CHART

Lbs/Yd	Description	Height in Inches	Scale					
			N	HO	S	O	1/32	1/22.5
12	ASCE	2.000	0.013	0.023	0.031	0.042	0.063	0.089
20	ASCE	2.375	0.015	0.027	0.037	0.049	0.074	0.106
25	ASCE	2.625	0.016	0.030	0.041	0.055	0.082	0.117
30	ASCE, RGS (See note)	3.125	0.020	0.036	0.049	0.065	0.098	0.139
40	ASCE	3.500	0.022	0.040	0.055	0.073	0.109	0.156
55	CN	4.062	0.025	0.047	0.063	0.085	0.127	0.181
56	GT	4.687	0.029	0.054	0.073	0.098	0.146	0.208
60	ASCE, GTP, CN, WSLC (See note)	4.250	0.027	0.049	0.066	0.089	0.133	0.189
65	ASCE	4.358	0.027	0.050	0.068	0.091	0.136	0.194
67.5	NTR, PEIR	4.016	0.025	0.046	0.063	0.084	0.126	0.178
70	ASCE, GT, D&RGW (See note)	4.625	0.029	0.053	0.072	0.096	0.145	0.206
80	ASCE, GT, CN, CP	5.000	0.031	0.057	0.078	0.104	0.156	0.222
85	CP	5.125	0.032	0.059	0.080	0.107	0.160	0.228
85	ASCE	5.187	0.032	0.060	0.081	0.108	0.162	0.231
90	AREA, GT	5.625	0.035	0.065	0.088	0.117	0.176	0.250
100	AREA, GT, CN	5.750	0.036	0.066	0.090	0.120	0.180	0.256
100	AREA, GT, CN, CP	6.000	0.038	0.069	0.094	0.125	0.188	0.267
100	AREA ("Head Free"), CN, CP	6.156	0.038	0.071	0.096	0.128	0.192	0.274
105	TH&B, NYC	5.750	0.036	0.066	0.090	0.120	0.180	0.256
110	AREA	6.125	0.038	0.070	0.096	0.128	0.191	0.272
115	AREA, CN, CP	6.625	0.041	0.076	0.104	0.138	0.207	0.294
127	TH&B, NYC	6.687	0.042	0.077	0.104	0.139	0.209	0.297
132	AREA, CN, CP, NYC	7.125	0.045	0.082	0.111	0.148	0.223	0.317
136	AREA, CN, CP, NS	7.312	0.046	0.084	0.114	0.152	0.229	0.325
152	PRR	8.000	0.050	0.092	0.125	0.167	0.250	0.356

AREA - American Railway Engineering Association
ASCE - American Society of Civil Enginers
NTR - National Transcontinental Railway (Canada)
PEIR - Prince Edward Island Railway (Canada)
GTP - Grand Trunk Pacific (Canada)
CN - Canadian National
CP - Canadian Pacific
TH&B - Toronto Hamilton & Buffalo
NYC - New York Central
NS - Norfolk Southern
PRR - Pennsylvania Railroad
RGS - Rio Grande Southern (ng)
D&RGW - Denver & Rio Grande Western (ng)
WSLC - Westside Lumber Co. (ng)

Note: For a more complete description of narrow gauge railroad rail see Narrow Gauge & Shortline Gazette Nov/Dec, 1989, pg63.

SCALE RAIL COMPARISON CHART

Lbs/Yd	Description	Height in Inches	Code within 10%					
			N	HO	S	O	1/32	1:22.5
12	ASCE	2.000				40		83
20	ASCE	2.375			40		70,75	100
25	ASCE	2.625			40	55	75,83	125
30	ASCE	3.125				70	70,100	125,148
40	ASCE	3.500		40	55	70,75	100	148
55	CN	4.062			70	83	125	
56	GT	4.687		55	70,75	100	148	
60	ASCE, GTP, CN	4.250			70	83	125	
65	ASCE	4.358			70,75	83,100	125,148	
67.5	NTR, PEIR	4.016				83	125	
70	ASCE, GT	4.625		55	70,75	100	148	
80	ASCE, GT, CN, CP	5.000			75,83	100	148	
85	CP	5.125			75,83	100	148	250
85	ASCE	5.187			75,83	100		250
90	AREA, GT	5.625		70	83	125		250
100	AREA, GT, CN	5.750		70	83	125		250
100	AREA, GT, CN, CP	6.000		70,75	100	125		250
100	AREA ("Head Free"), CN, CP	6.156		70,75	100	125		250
105	TH&B, NYC	5.750	40	70				250
110	AREA	6.125		70,75	100	125		250
115	AREA, CN, CP	6.625	40	70,75,83	100	125,148		
127	TH&B, NYC	6.687	40	70,75,83	100	125,148		
132	AREA, CN, CP, NYC	7.125	40	83	100	148		
136	AREA, CN, CP, NS	7.312	40	83	125	148	250	350
152	PRR	8.000		83,100	125		250	350

To use the above chart to select rail size for the scale in which you are modeling, first select the weight of the prototype rail from the "Lbs/Yd" column. Then read across the row to find the code in the column of your scale. This will indicate the correct code of rail to use. In some cases you will not be able to get exactly the correct code so you will have to decide the code that is the closest to being correct.

Additional information on model rail sizes can be found in Recommended Practices RP15.1.