DATA SHEET

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Sheet #:	D9p
Title:	CLEARANCE DIAGRAMS
Updated by:	Pete Moffett, MMR
Updated:	October 1999
First Issued:	April 1964 (D9o)
Originally Compiled by:	Bob Johnson
Reference Material:	1995 Manual For Railway Engineering American Railway Engineering Association
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INTRODUCTION

Reproduced in these pages are clearance diagrams from the Manual for Railway Engineering as published by the American Railway Engineering Association, Engineering Division, Association of American Railroads. The figures are correct and complete as of April 1964 Note that all measurements are taken from the plane of the top of the running rails, and from the centerline of track. NMRA STANDARD S7, Clearances, makes the same provision.

BRIDGES AND TURNTABLES

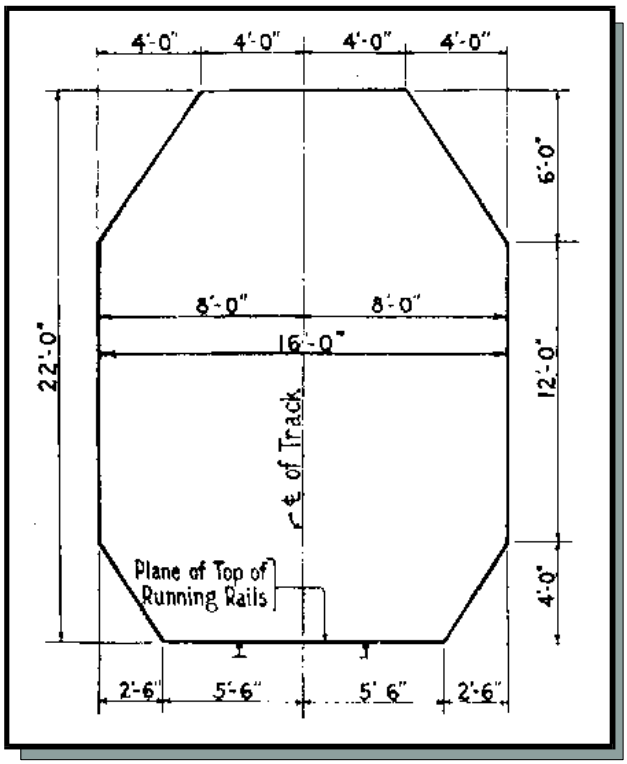

Fig. 1: Clearance Diagram for Railway Bridges

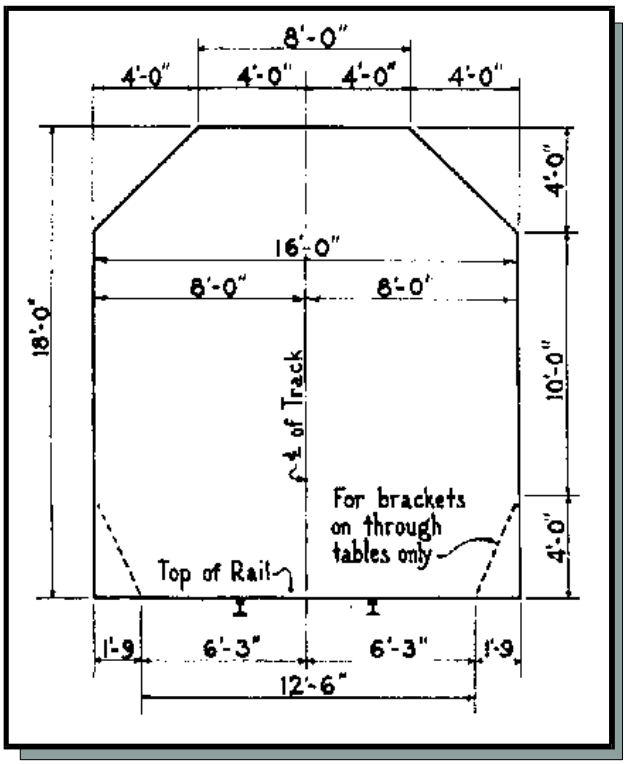

Fig. 2: Clearance Diagram for Turntables

Figure 1 will be recognized as the ancestor of the NMRA Clearance Diagram. Clearances for model railroad tangent tracks almost exactly coincide with the values provided in this figure. Old textbooks on bridge design indicate that early in the twentieth century the top clearance line of this diagram stood at 20'-0" above railhead, and that only 3' each side of centerline was provided. Figure 2 illustrates the fact that within yards and terminals, prototype clearances may be somewhat less liberal than on the road.

STRUCTURES AND BUILDING DOORS

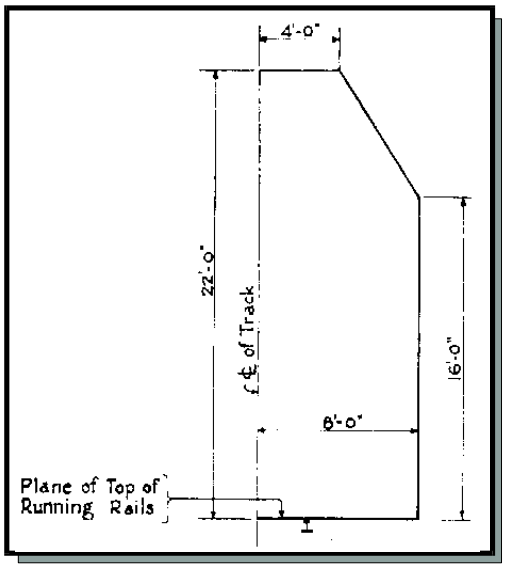

Fig. 3: Clearance Diagram for Structures (other than platforms) Adjacent to Industrial Side Tracks

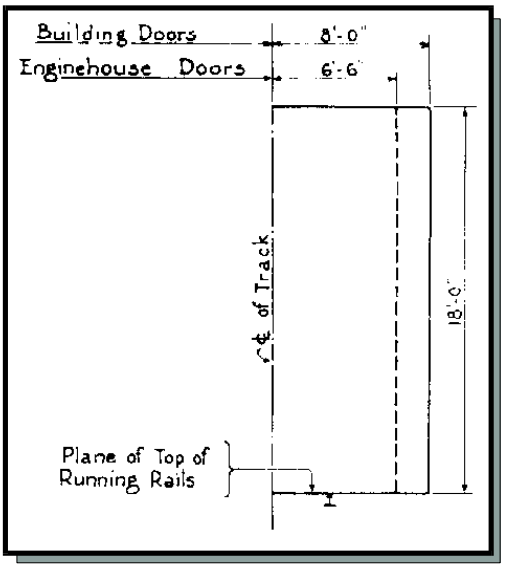

Fig. 4: Clearance Diagram for Building Doors

In the latest revision of its Manual, AREA provides a trackside-structures clearance approximately coincident with the one for bridges. An earlier edition (1953) permitted shed roofs to encroach on the present clearance diagram, falling as low as 15'-6" above railhead and as little as 5'-6" from track centers. Present freight-car construction techniques combine with greater safety provisions in demanding increased clearances. The earlier version also permitted building doors to be a foot lower than indicated in Figure 4, and warehouse doors to be six inches narrower on each side of center.

TUNNELS

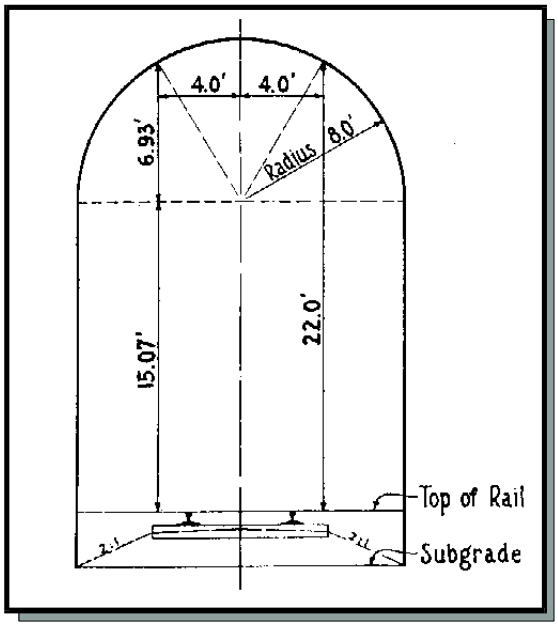

Fig. 5: Clearance Diagram for Single-Track Tunnel

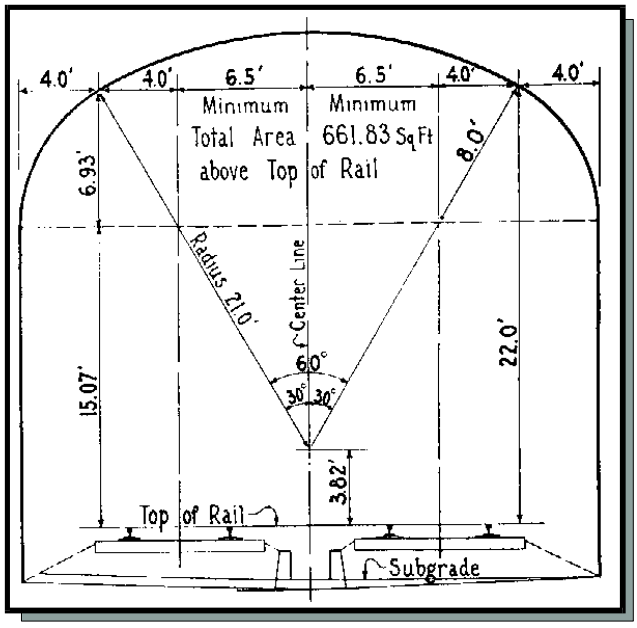

Fig. 6: Clearance Diagram for Double-Track Tunnel

TUNNELS - continued

From these figures it may be seen that even in tunnels, the aim of AREA Standards is to provide clearance of four feet each side of track centers at a line 22 feet above railhead. Note that track centers of thirteen feet minimum are recommended in two-track; bores, and that drainage between tracks is suggested.

PLATFORMS

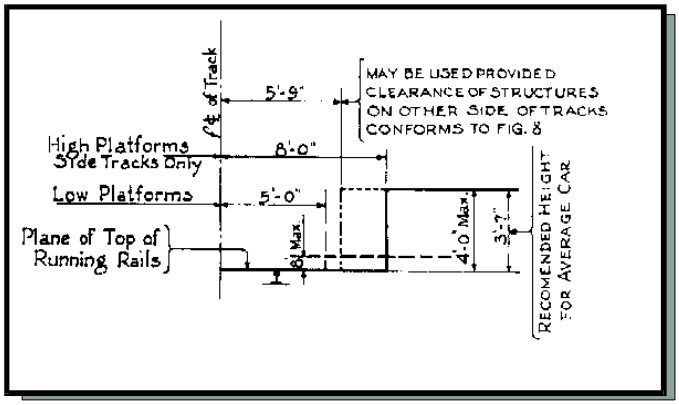

Fig. 7: Clearance Diagram for Platforms

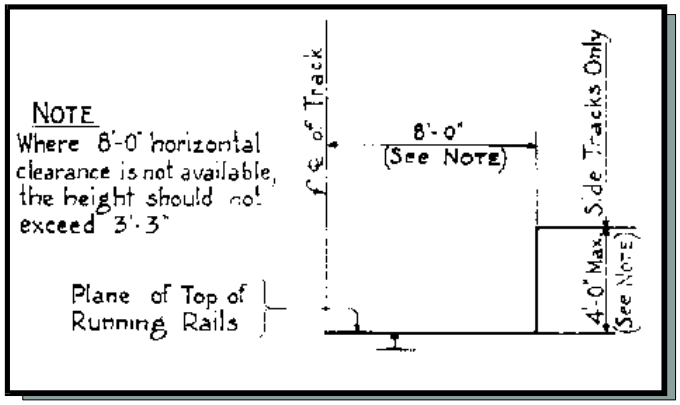

Fig. 8: High Platforms Serving Refrigerator Cars

As with the Structures Clearances above, car building techniques brought about a change in AREA specifications in the 1953 version of Figure 7, the 5'-9" distance from track center was a minimum standard, rather than a permissive value. Wide use of plug-door and swinging-door box cars now suggests that loading platforms for all car types be located eight feet from track centers, unless clear space is available on the side opposite the platform. The increased distance also provides side clearance for trainmen riding car sides. Note that where refrigerator cars are consistently loaded, platforms are to be built higher because of the greater distance from railhead to threshold on that type of car; floor insulation comes into play in this instance. If full side clearance is not available, platform height is reduced to permit the car doors to be swung open above the platform.

SUMMARY

Clearances in the AREA Manual are the minima recommended for prototype railroading. Longer, higher, wider cars, as referred to in the text of this sheet, in many cases demand far more than minimal clearance. For example, when the Southern Railway modernized the old Cincinnati Southern, tunnel clearances were increased from 15'-6" width and 20' height to 20' width and 30' height, and many big tunnels were converted to deep cuts. While the prototype practice of "daylighting" tunnels may not carry over into modeling, one may observe the general rule of exceeding minimum clearances wherever practical. NMRA Standards S7 and S8 should be referred to in all layout design and building.

CLEARANCE DIAGRAMS FROM 1995 AREA MANUAL

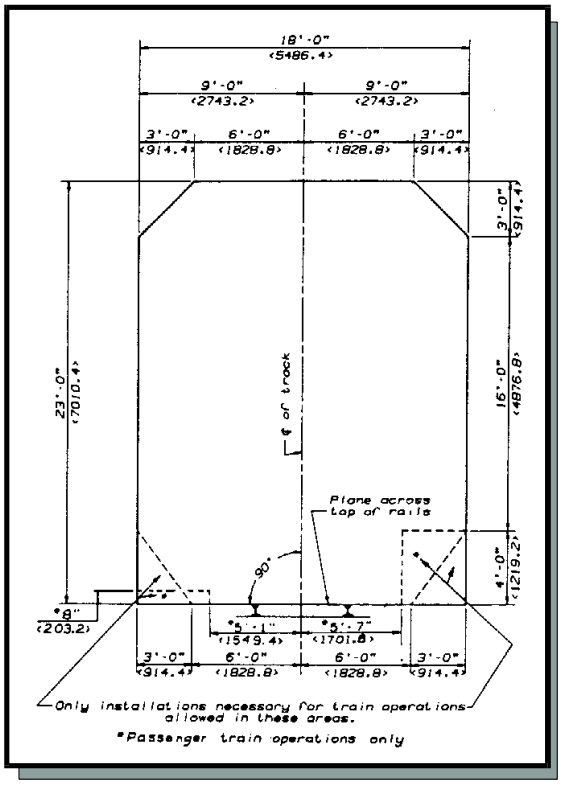

Fig. 9: General Clearance Diagram for Tangent Track

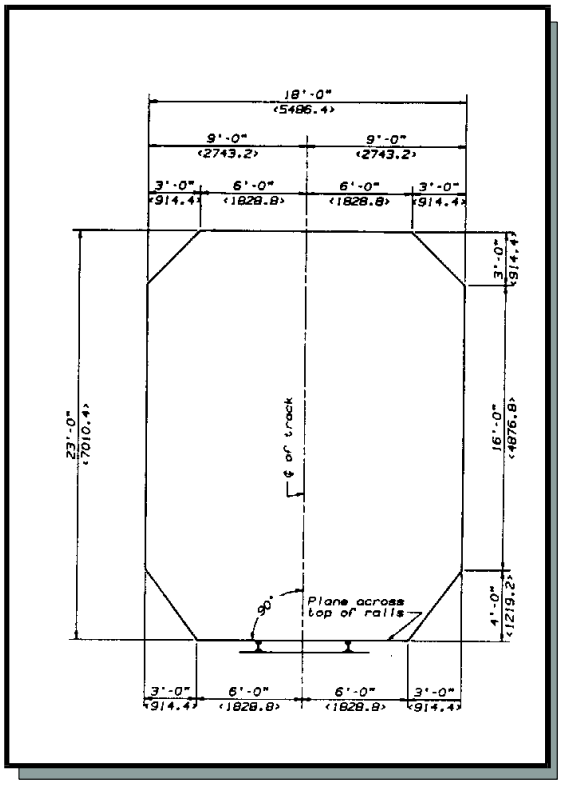

Fig. 9: Clearance Diagram for Bridges

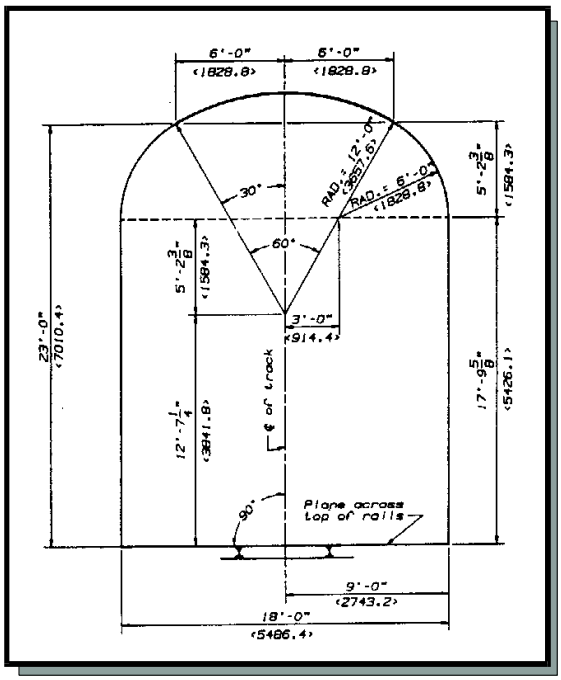

Fig. 9: Clearance Diagram for Single-Track Tunnel

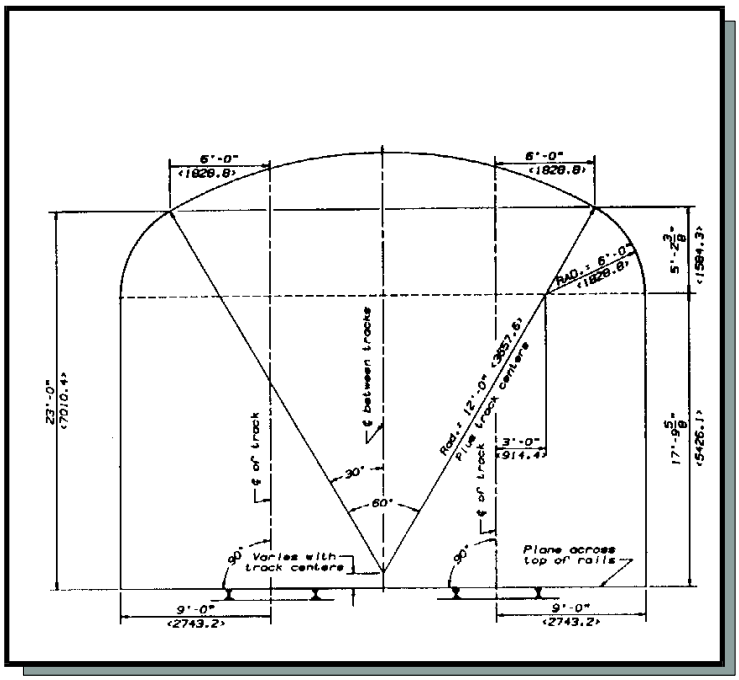

Fig. 9: Clearance Diagram for Double-Track Tunnel

CLEARANCE DIAGRAMS FROM 1995 AREA MANUAL

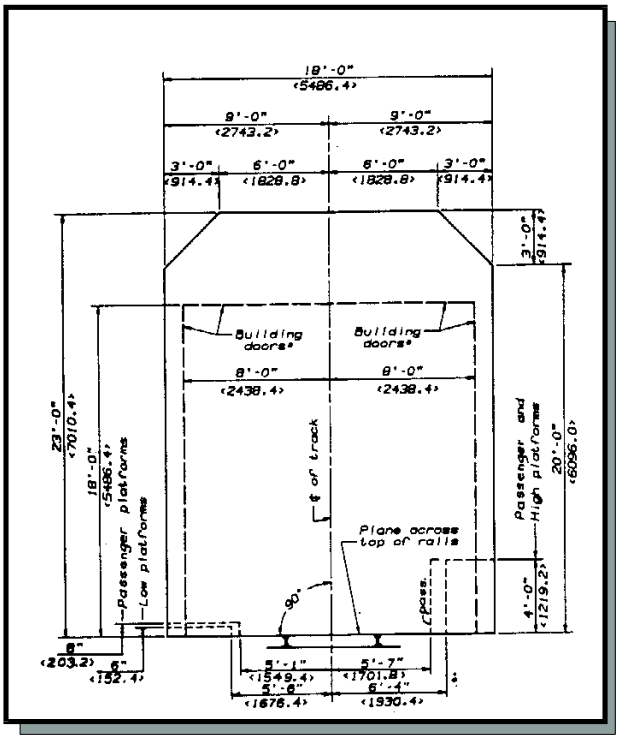

Fig. 9: General Clearance Diagram for Side and Industrial Tracks

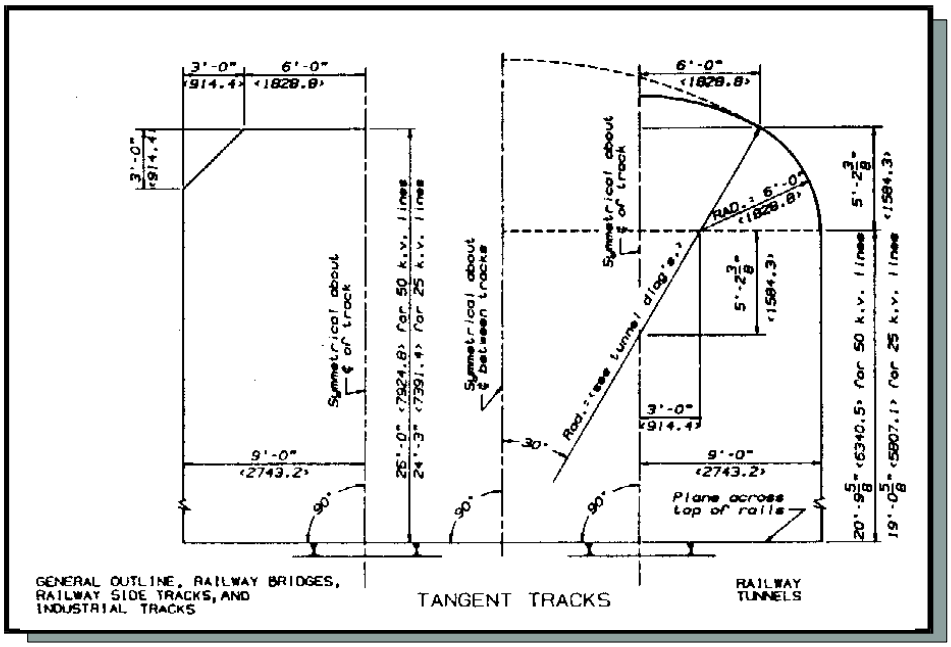

Fig. 9: General Clearance Diagram for Electrified Track