DATA SHEET

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Sheet #:	**D3h.2**
Title:	**TERMINAL AND YARD DESIGN: PASSENGER**
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GENERAL

Primary function of a passenger terminal is to provide the necessary platforms, tracks, crossovers and signal system to efficiently handle the character and density of traffic obtaining at a given location. Due consideration should be given to the number of cars operated in the trains handled at that point, for this will govern to a large extent the length of platforms and coach yard tracks.

As the length of trains increases, it is advantageous to extend the platforms to match them, provided buildings, trackwork, bridges or other obstructions do not prevent this. It should be kept in mind that ordinarily, if more than one platform is required, not all have to be as long as the longest train(s) operated, as this would be an unnecessary luxury considering the high valuation of and taxes on terminal properties.

Good design will provide only sufficient track and platform space and coach yard capacity to handle those trains that would normally be in the terminal at one time.

Another consideration is whether or not head end cars are to be worked after the train is complete and platformed. If head end cars are to be worked thus, then of course platform(s) must be long enough to accommodate the entire train, not counting the engine. If head end cars are not to be worked, platform(s) need only be long enough to accommodate cars other than head end cars. However the track on which the complete train, including engine, is to be made up should be long enough to allow the train to clear leads to other tracks.

The secondary function of a passenger terminal is to provide necessary supporting facilities such as ticket offices, waiting rooms, baggage rooms, lunch counters, restaurants, coach yards, steam and power plants, commissaries, locker rooms and repair shops.

Although not actually connected with passenger travel, facilities required to handle mail, express and milk are considered part of a passenger terminal inasmuch as this traffic is handled in passenger trains.

STUB AND THROUGH TERMINALS

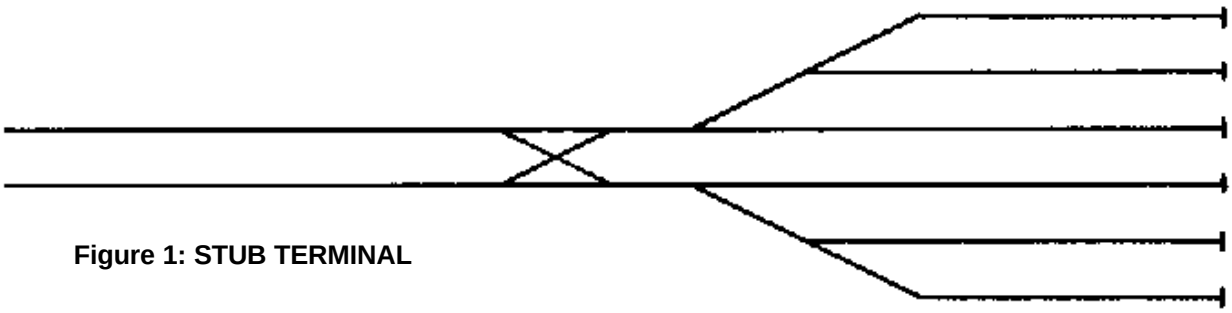

Figure 1: STUB TERMINAL

STUB AND THROUGH TERMINAL DESIGN - continued

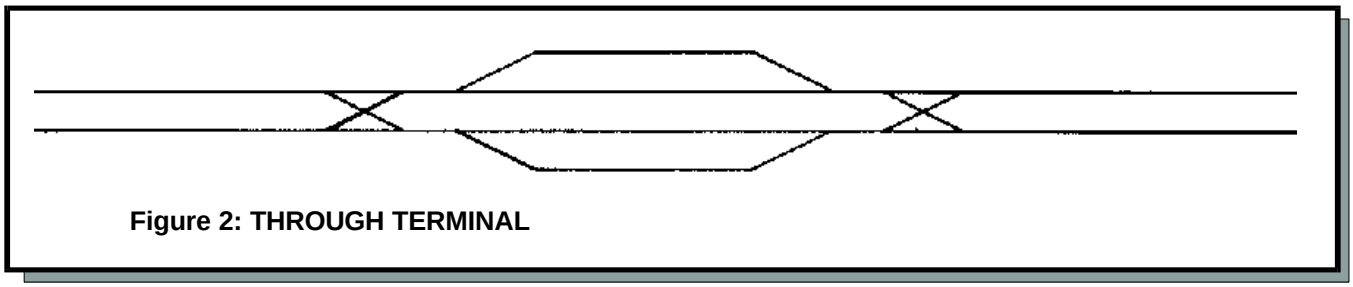

Figure 2: THROUGH TERMINAL

A stub terminal is one in which all tracks end at the station and trains can enter and leave from one end only. A good example (Fig. 1) of this type is North Station on the Boston & Maine in Boston, Mass.

A through terminal is one in which tracks pass through the terminal and trains can continue in the original direction after stopping. A good example (Fig. 2) of this is the Union Station in Troy, N.Y., where trains are exchanged between the D & H and the NYC.

In addition to the above, there are also some terminals which are both stub and through. In these terminals, some tracks end at a bumping post at the station, while others pass through.

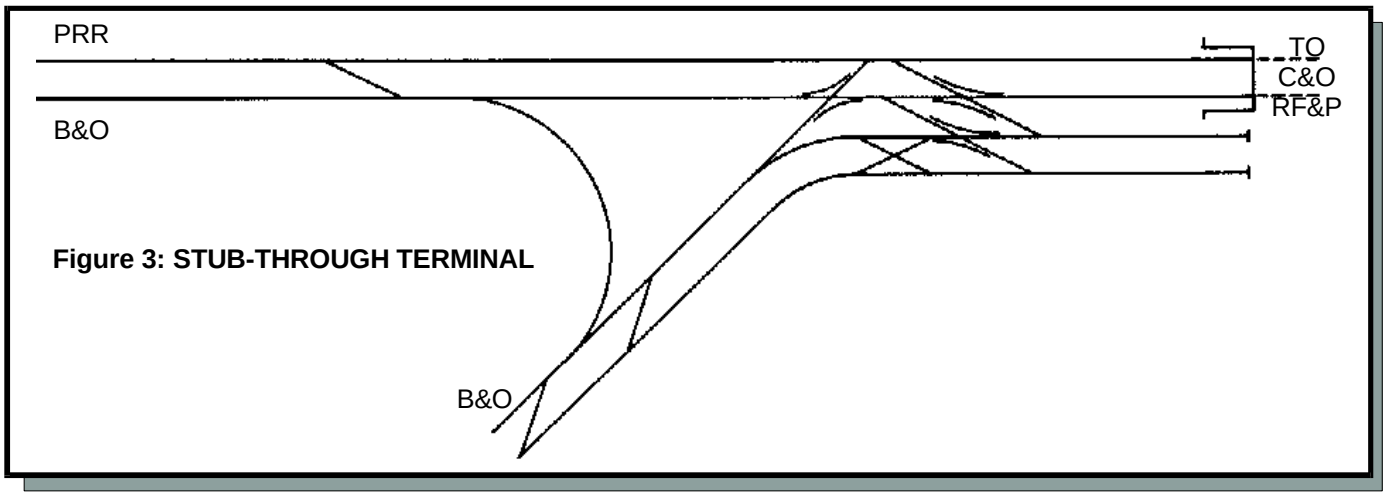

Figure 3: STUB-THROUGH TERMINAL

An example of these (Fig. 3) would be the Union Station in Washington, D. C., wherein many trains of the PRR pass on to the RF&P and Southern and vice versa, this being the THROUGH feature. Also, the B&O, C&O, PRR and RF&P originate and terminate trains at Washington, this being the STUB terminal feature.

DESIGN

To receive, remake and forward trains, a stub terminal (Fig. 4) must have at least two tracks, connected by a switch, to permit adding, setting out, and/or changing order or position of cars. A through terminal (Fig 5.) must have such a facility at each end of the station.

DESIGN - continued

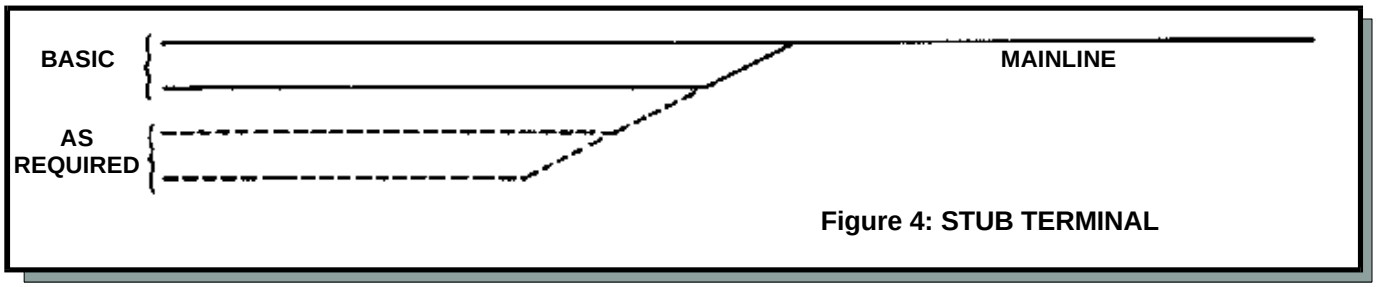

Figure 4: STUB TERMINAL

Further, if the through terminal is one at which road engines are regularly changed, a runaround track should be provided to permit arriving road engines to pass around their trains, enroute to the engine terminal without delay.

At stations having a sufficient volume of traffic to justify it, separate tracks are provided for working express, mail and baggage care, so that they may be worked without disturbing other cars.

The connecting link between the platform tracks, coach yard and main line is the all-important "throat," which is the group of tracks and crossovers between the above mentioned facilities. The throat can make or break a terminal, so therefore, its design should receive very careful consideration.

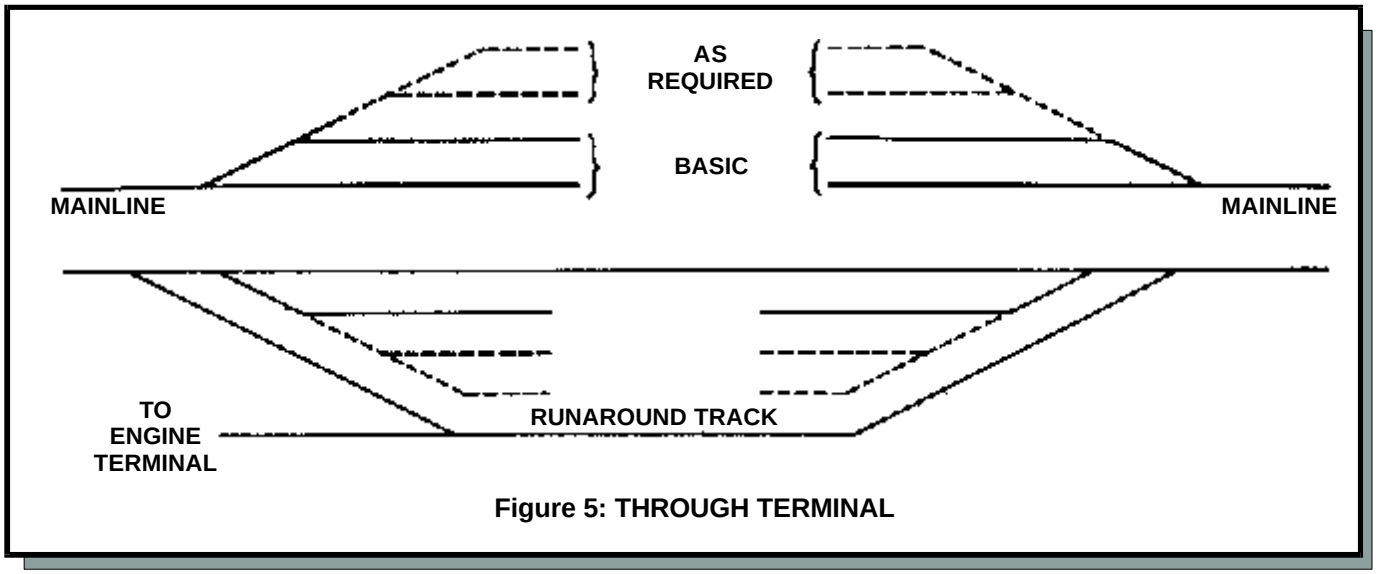

Figure 5: THROUGH TERMINAL

Here again, in the throat, a sensible balance should be achieved between crossovers and tracks necessary to efficiently handle traffic at *all* times and those necessary to handle traffic *only* under normal conditions. Its design is predicated on the number of main line tracks leading out of the terminal, and also on intensity of traffic at peak periods.

DESIGN - continued

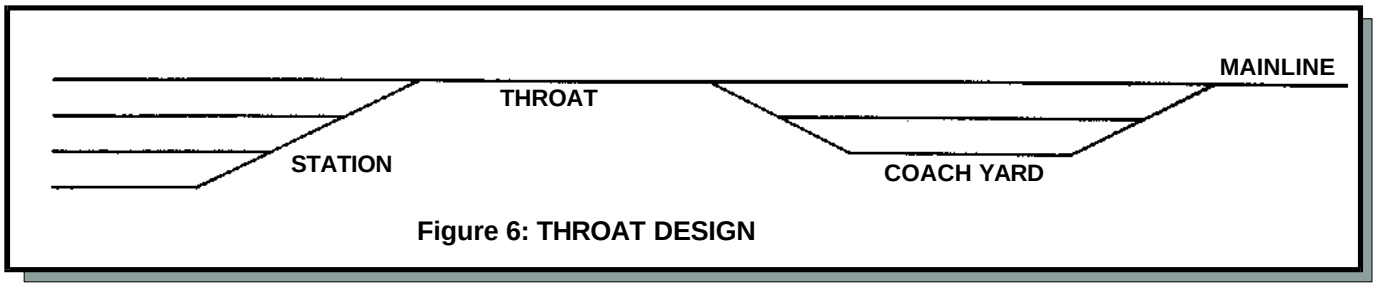

Figure 6: THROAT DESIGN

To be specific, a throat leading to a main line with sparse traffic could be one track into which all station tracks converge and then diverge into the coach yard tracks and main line. (Fig. 6)

Next, a throat serving a terminal having periods of heavy, peak traffic would have two or more tracks connecting the station with the coach yard in order to avoid delay to movements between those areas. (Fig. 7)

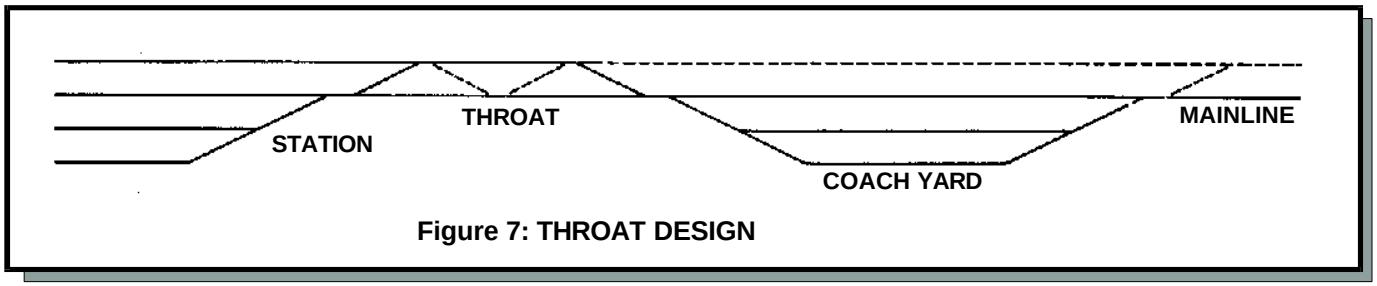

Figure 7: THROAT DESIGN

If delays would still be incurred by conflicting movements into and out of the station and coach yard during periods of peak traffic, such as those that are obtained with intense commuter service, the next remedy is the addition of another ladder track in the area involved, so that parallel movements may be made.

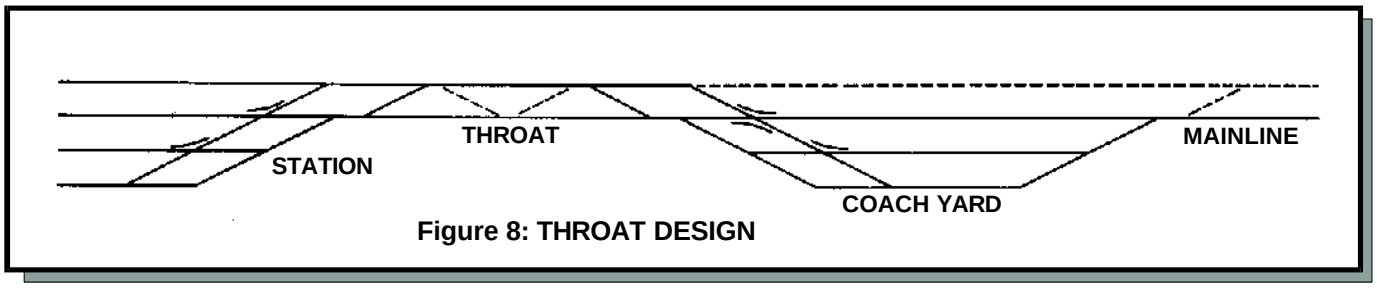

Figure 8: THROAT DESIGN

In older coach yards (Fig. 8), the tracks were spaced as closely as 12 feet on centers, which of course did not provide sufficient space to work about the cars. Modern design favors wider spacing; recent installations provide for as much as 20 feet centers, with platforms 9 feet wide between tracks, to facilitate passage of tractors and carts with servicing equipment, such as hose reels, generator sets for battery charging, ice carts for air conditioning and water coolers, etc. Transverse wood or concrete crosswalks connect the platforms and service buildings.

DESIGN - continued

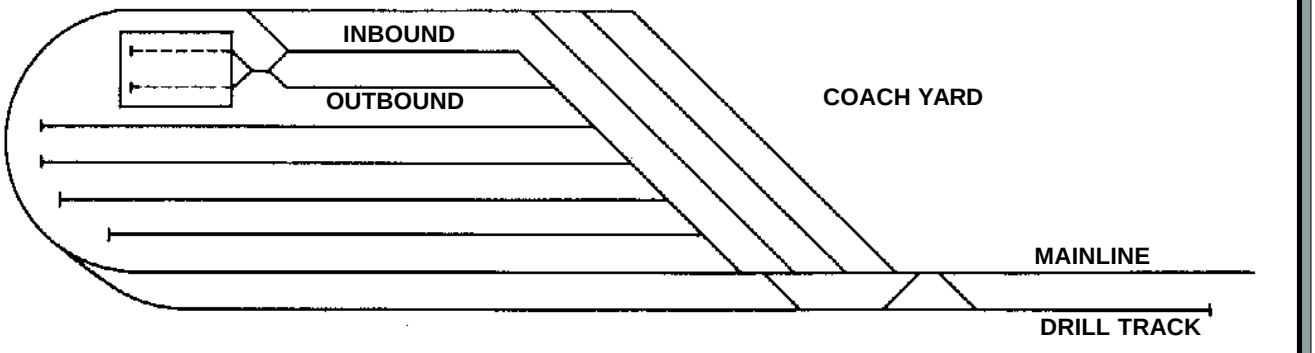

Figure 9: COMBINED TERMINAL FOR A MODEL RAILROAD

One other important consideration in a passenger terminal is whether or not certain cars or entire consists have to be turned. If only cars have to be turned, a turntable will suffice, that of the engine terminal could be used provided it does not interfere with engine terminal activities. If entire consists have to be turned intact, then of course a wye or turning loop is necessary. The latter is particularly useful in model railroad work. Conveniently it can encircle the engine facilities and can add considerably to the length of the main line run if properly combined with the other terminal facilities as illustrated in Figure 9.

MODEL RAILROAD TERMINALS

Although the foregoing features of design are primarily concerned with prototype operation, they are helpful in planning a model railroad terminal. However, they should be modified for direct application to model railroad usage. Insofar as the average model railroad is a one-man operation, it would seem unnecessary to provide facilities which could only be worked by more than one person.

Accordingly, the following deviations from normal prototype practice become good model railroad practice from both an operational and a maintenance standpoint:

1. Eliminate duplicate ladder tracks.
2. Avoid slip switches if space is available.
3. Fewer throat tracks needed. There should be continuous main line tracks to avoid a bottleneck in the station.
4. When the planned traffic pattern indicates there will be no accumulation of trains in the station, the coach yard may be eliminated and the station tracks used for that additional purpose.
5. By running a loop around the terminal, incoming trains will be turned automatically, thus saving a wye and materially speeding up terminal movements where time is at a premium to prepare for main line running.

The design presented above illustrates the application of these principles of good model railroad terminal design.