

EBD 3.2 INCREASED CAPACITY VERSIONS OF ENTRANCEWAY AND CAR BODY DESIGN EBD 3.1 - FOR HL PLATFORMS ONLY

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1. Abstract

This car body design provides the following features:

- The basic EBD 3.1 carbody design has advantage over conventional double deck designs with vertical clearance limitations (such as in tunnels in the Northeastern U.S.) of providing full aisle headroom for all passengers, and providing effortless access for ADA passengers at both HL and LL platforms. With wide 2+2 seating, it has capacity for 121 to 126 passengers (plus 4 more in narrow bench seats near the doorways).
- When all platforms are HL, the elimination of the LL entranceway enables a reconfiguration that increases capacity more than through just substituting seats where entranceways had been.
- With wide seats only (typical of 2+2 seating in conventional cars), the HL-only car will seat 138 passengers.
- In addition level 3 (the upper level) can be fitted with somewhat narrower seats, increasing seating capacity to 152 seats.

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1. Basic Design and Capacity

The basic redesign is shown in Figure 1. As can be seen, this design places the center aisle on level 1, which has 2 seats on either side of the aisle. Level 3 now has two aisles, and with wide seats this provides for 3 abreast seating. The capacity of this configuration, with seats only (i.e., no space taken for wheelchairs, toilet, etc.) is:

Level 1: 16 rows x 4 seats/row = 64 seats
 Level 2: Same as before = 32 seats
 Level 3: 14 rows x 3 seats/row = 42 seats
 Total = 138 seats

It is important to note that all of these seats are of the wide variety. Also, all aisles have full headroom. This compares to 121 to 126 for the original HL and LL platform version with all wide seats.

2. Mobility Impaired Access and Accommodations

Since all platforms are HL, level 2 is used for wheelchairs, and there is no need for a lift between levels. Wheelchairs would be carried in spaces on this level.

3. Increased Capacity on Level 3 with Some Narrow Seats

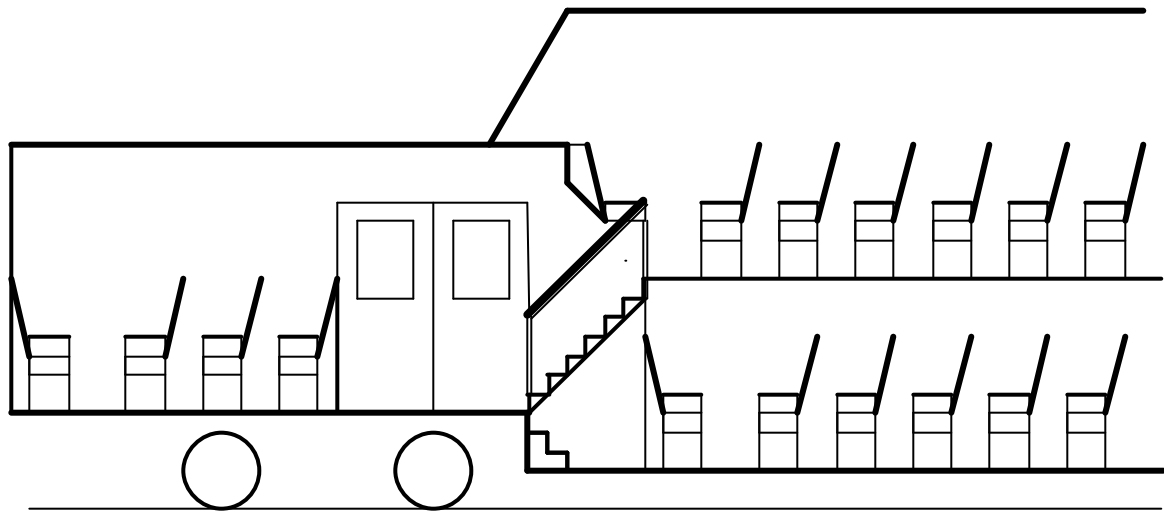
Level 3 is entirely at the widest part of a typical car body, usually 10 ft 6 in wide, but 10 ft 8 in is permitted by AAR Plates B and C. Thus it is possible to have but 4 abreast in addition to the two narrow aisles (similar to those on conventional gallery cars). The result is that at least some of these seats must be narrower than the typical wide railroad seat. For example, a bench seat in the middle could be used by two persons when the car is crowded, but used by only one person at other times. Also, this seat has an aisle on both sides, so that passengers are likely to feel less crowded than with the 3-person bench seat usually used with high density seating. This increases the capacity to 152 seats.

4. Design Options

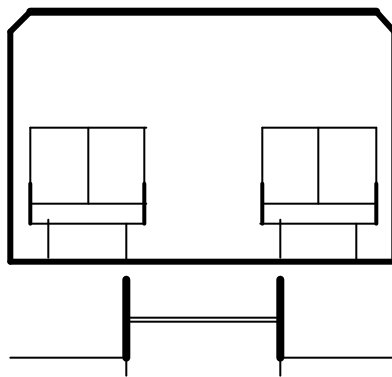
In principal, it would be possible to have narrow width seating on all levels of this car, in which case the number of seats would increase considerably. However, the narrow seats with the 3+2 arrangement are generally unpopular, and few commuter agencies are choosing this type of car.

It should be noted that all the design options discussed for EBD 2.1 and 3.1 apply to this variation as well. In particular, there may be some situations where end vestibule style doors—such as design EBD 1.1-- would be desired.

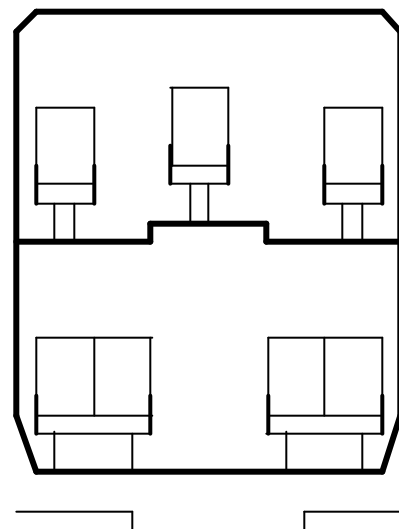
Attachments:
 Figures 1 and 2



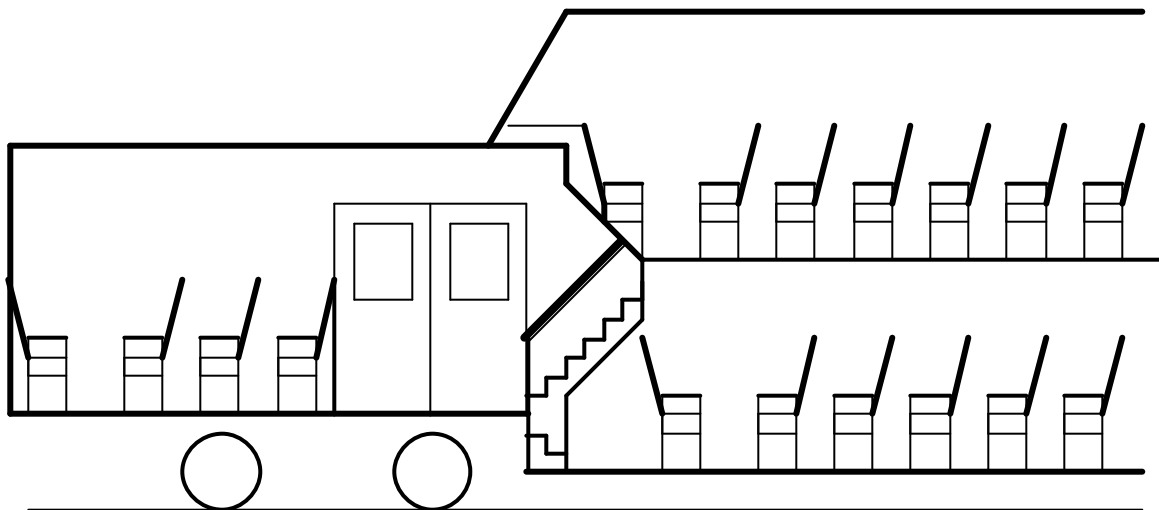
(a) Side elevation cross section through far side seats.



(b) Cross section through level 2 (above).

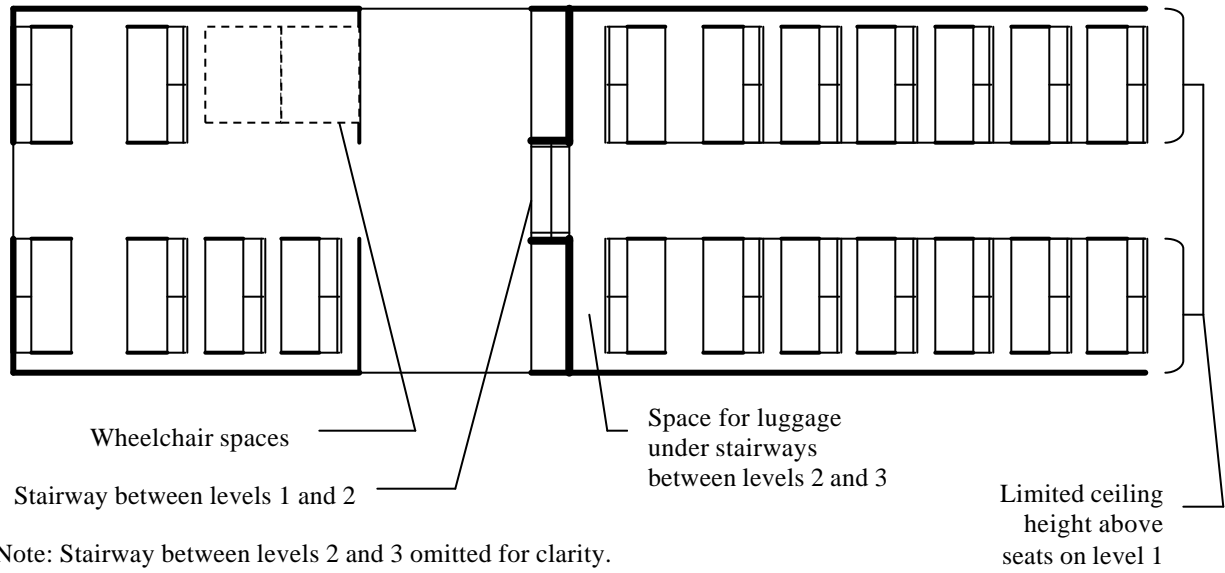


(c) Cross section through levels 1 and 3 (to right).

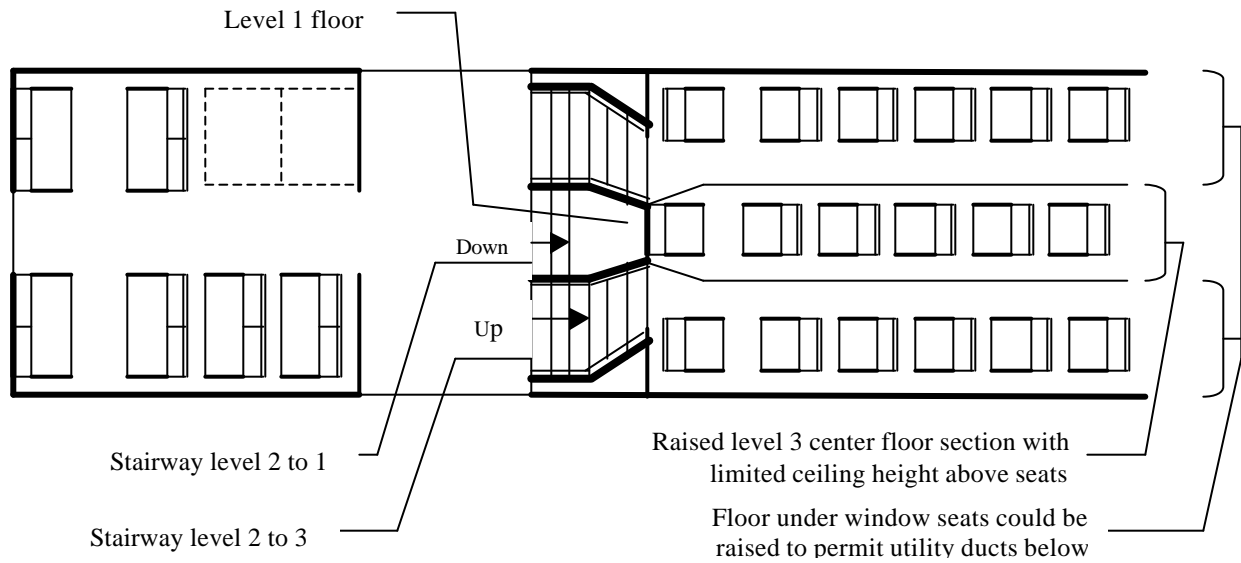


(d) Side elevation through center of level 1 aisle and center level 3 seats.

Figure 1. Three level car body design.



(a) Cross section just above level 1 seats, also showing level 2 area.



(b) Cross section just above seats in level 3, also showing level 2 and stairways to level 3.

Figure 2. Top elevations of levels 1, 2, and 3.