



Siemens Rolling Stock

Brightline Passenger Coaches and PRIIA-Specification

The Brightline train

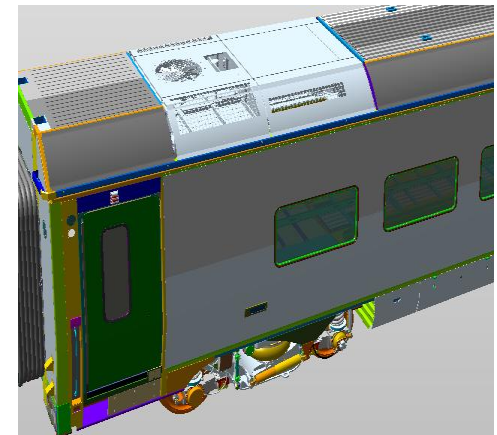
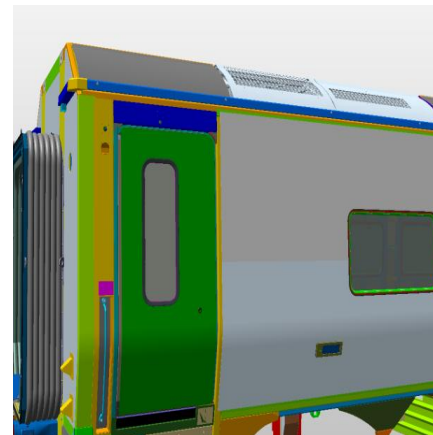
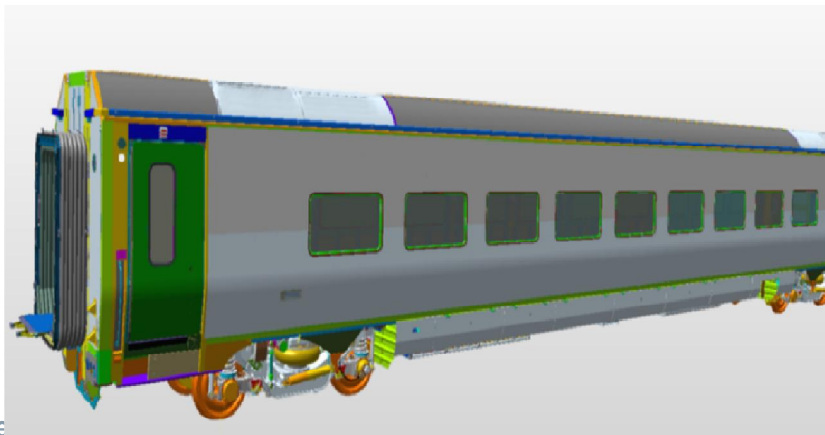


- Developed based on customer requirements
- Technical design based on the PRIIA-Specifications, with deviations
 - when required by the customer
 - when technically necessary

Basics of the coach

Fulfill Latest Standards

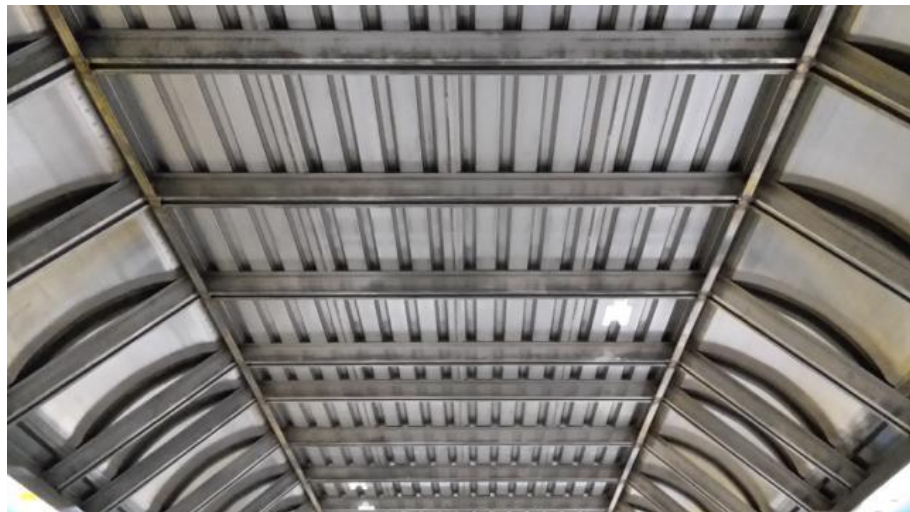
- ✓ Standardized coach with flexibility for customer needs, complies with ADA requirements
- ✓ 85' long, 10'6" wide and 14' high car body made from stainless steel with flat sidewalls & tapered roof
- ✓ Modern roof mounted HVAC system and optimized air distribution ensuring passenger comfort
- ✓ Four wide sliding-plug side doors offering ease of entry & reducing dwell times
- ✓ Fabricated truck with air spring suspension for substantially improved ride quality & derailment safety
- ✓ Semi-permanent coupled gangways ensuring free passage between cars
- ✓ 125 mph service speed
- ✓ Crash Energy Management in accordance with the current federal regulations



Carshell – General Information



- Modern Design
- Dimensions acc. PRIIA 4.3.1
- Stainless steel frame
- Continuous flat stainless steel sheets spot welded to the framework
- 100% Buy America compliant



Entrance Door System



- Four powered single-panel sliding-plug electro mechanic side entrance doors with a clear width of 34"
- Gap filler system for high level boarding is fully compliant with ADA requirements
- Provisions designed in the car body to mount a lower level step assembly and a trap door to allow low level boarding
- Optimized for platform height of 48" and a distance of 73" (platform edge – track centerline)

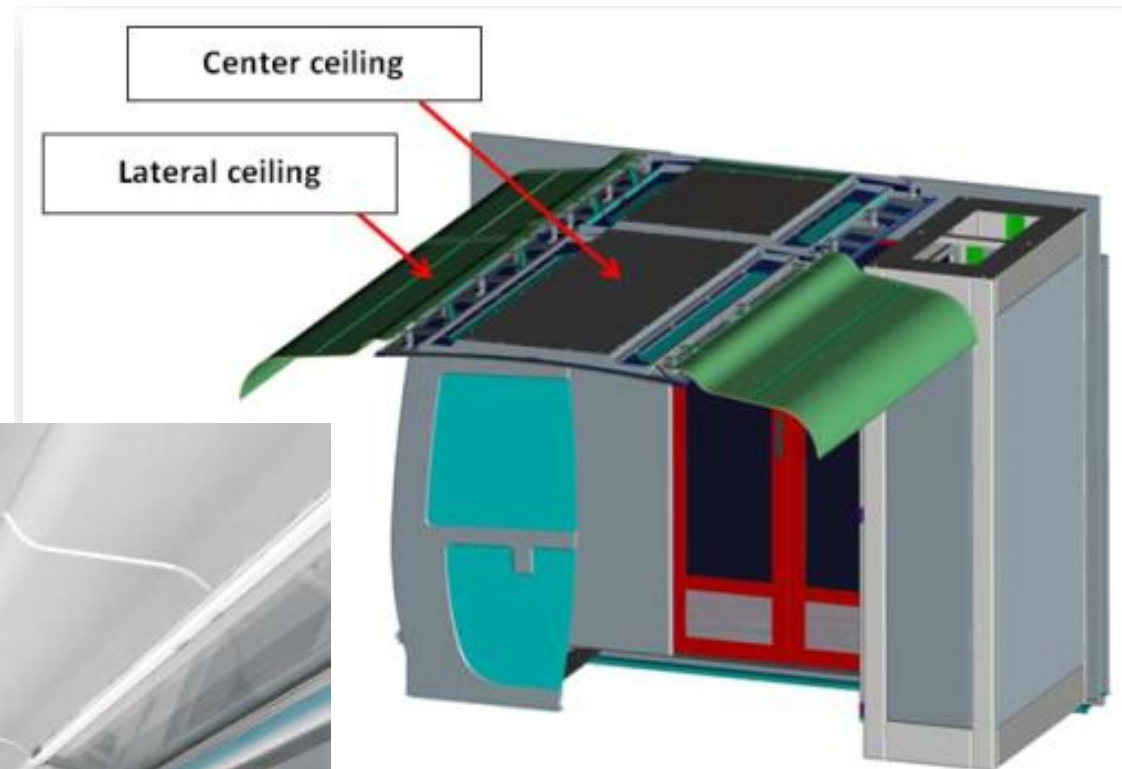
PRIIA Single Level Coach Compliance

Major topics that came up before and during project execution:

- ✓ Semi-permanently coupled cars => customer preference, provisions included in the design for change to standard coupling for single car operation
- ✓ One ADA toilet room per car => customer preference to increase seating capacity
- ✓ Toilet & water system => partial vacuum system
- ✓ Truck and Brake => Fabricated truck, lightweight design
- ✓ Coach weight => technical reasons for deviations from PRIIA
- ✓ High level platform access => customer requirement, provisions included in the design for low level access
- ✓ Interior comfort => flexible design which can be modified in line with customer requirements

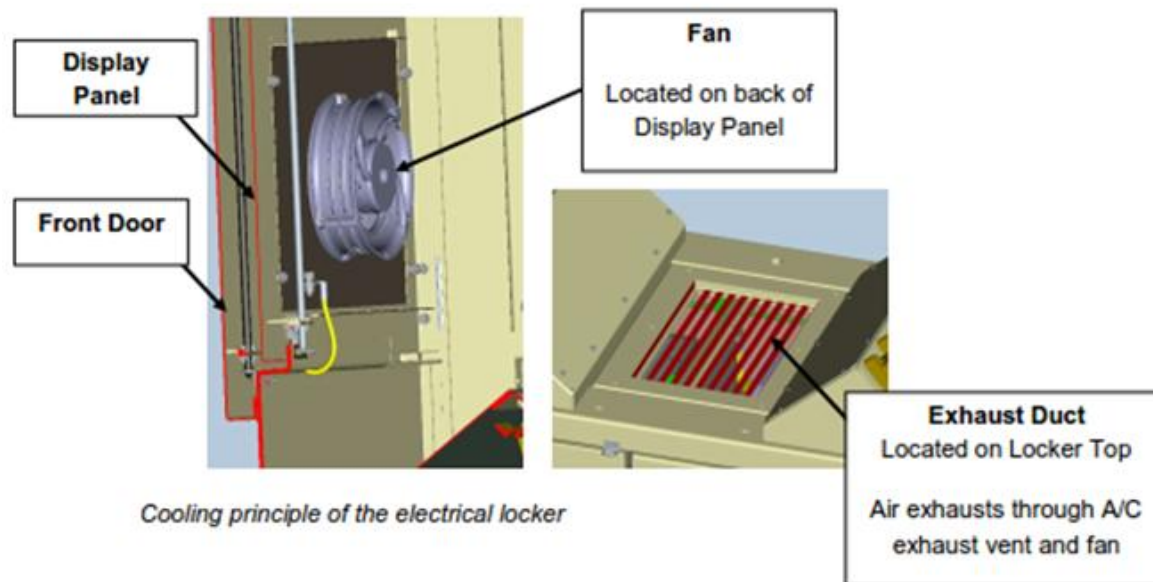
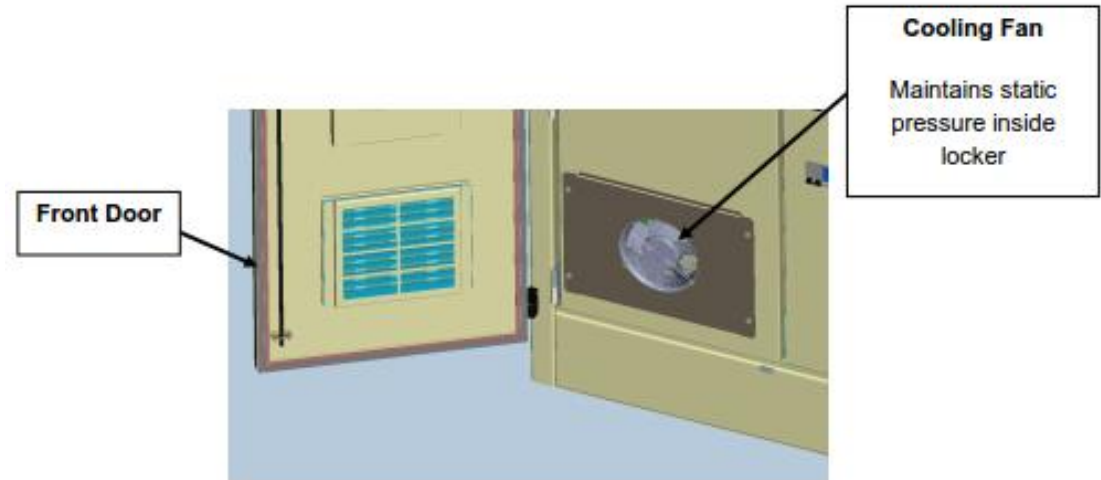
PRIIA SL Compliance Interior Design

- Ceiling panels are made of aluminum instead of stainless steel due to weight reduction



PRIIA SL Compliance Interior Design

➤ Cooling of the electrical locker will not be provided by connection to the HVAC system but with a fan mounted on bottom of the door. The hot air will be exhausted by an exhaust air fan on top of the locker. The system is designed, that there will be overpressure inside the locker if both systems are working.



PRIIA SL Compliance Sanitary System



- Complies with 49 CFR § 38.123 Restrooms, APTA PR-CS-S-006-98 and PRIIA 305-912
- Compact vacuum toilet system
- Sanitary system is controlled with a modular logic controller with bus system, double spaced info display and operating panel
- Spacious design with 42" door clear width, built with honeycomb panels for weight reduction

- Integrated hand dryer in the water outlet
- Customer chose not to include an optional Unisex Toilet Room and to instead use the space for additional passenger seats



PRIIA SL Compliance Sanitary System

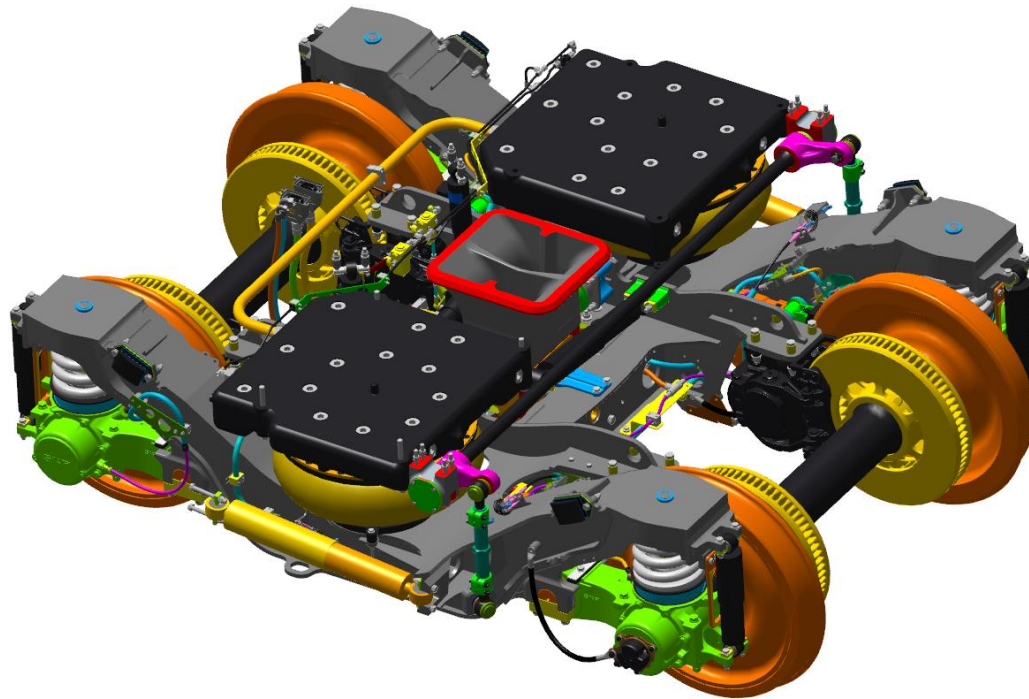
A partially pressurized system instead of a complete pressurized system is used for the new passenger coaches. This results in the following deviations to PRIIA 305-003 requirements.

- Under the roof mounted unpressurized fresh water tank (pressure less falling water)
- Stainless steel sanitary piping (no copper), no special vacuum tight seals or valves are needed
- Compact vacuum toilet, the human waste will be sucked into a intermediate tank & transported with gauge pressure to the waste water tank
- Hot water will be mixed with a fixed temperature of 104 F instead to automatically blend hot & cold water
- Underfloor mounted unpressurized waste water tank (painted) at the A-end of each car
- A pump pressurizes the water for the faucet
- No drinking water station

Reasons for change / advantages of the chosen concept

- ✓ Service proven solution (operating on thousands in European coaches)
- ✓ Improved reliability
- ✓ Lower maintenance effort - Maintenance for toilet bowl can be done outside of the car (only 15min to change)
- ✓ Adaptable to specific customer requests
- ✓ Weight decrease
- ✓ Extensive diagnostic capabilities
- ✓ Lower water consumption

PRIIA SL Compliance Truck



The truck is a evolutionary design from Service proven fabricated trucks to fit the needs of the American market . The main deviations to PRIIA are

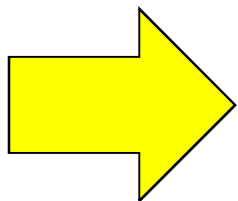
- Aluminum air reservoirs
- Minimum clearance between truck components is below 1”
- Brake shoes & pads are not Amtrak standard
- No double stage braking, but continuous deceleration over speed range verified by measurement
- Brake control is not inside the car body

Reasons for change / advantages of the chosen concept

- ✓ Service proven design
- ✓ High ride comfort
- ✓ Weight optimization by compact truck design
- ✓ Lower maintenance effort

PRIIA SL Compliance Vehicle Weight

- PRIIA dry weight limit for a single level passenger coach is exceeded by the new passenger coach
- Main impact on coaches weight is provided by the following features
 - Car shell structure compliant with structural strength and CEM requirements
 - Car shell design with flat sidewalls
 - High requirements on comfort (temperature, noise) and accessibility (gap-filler)
 - Modern customized equipment of the car (toilet room, seats, tables)



We propose to analyze the impact of the named features on the total car weight and to re-evaluate the total weight criteria.