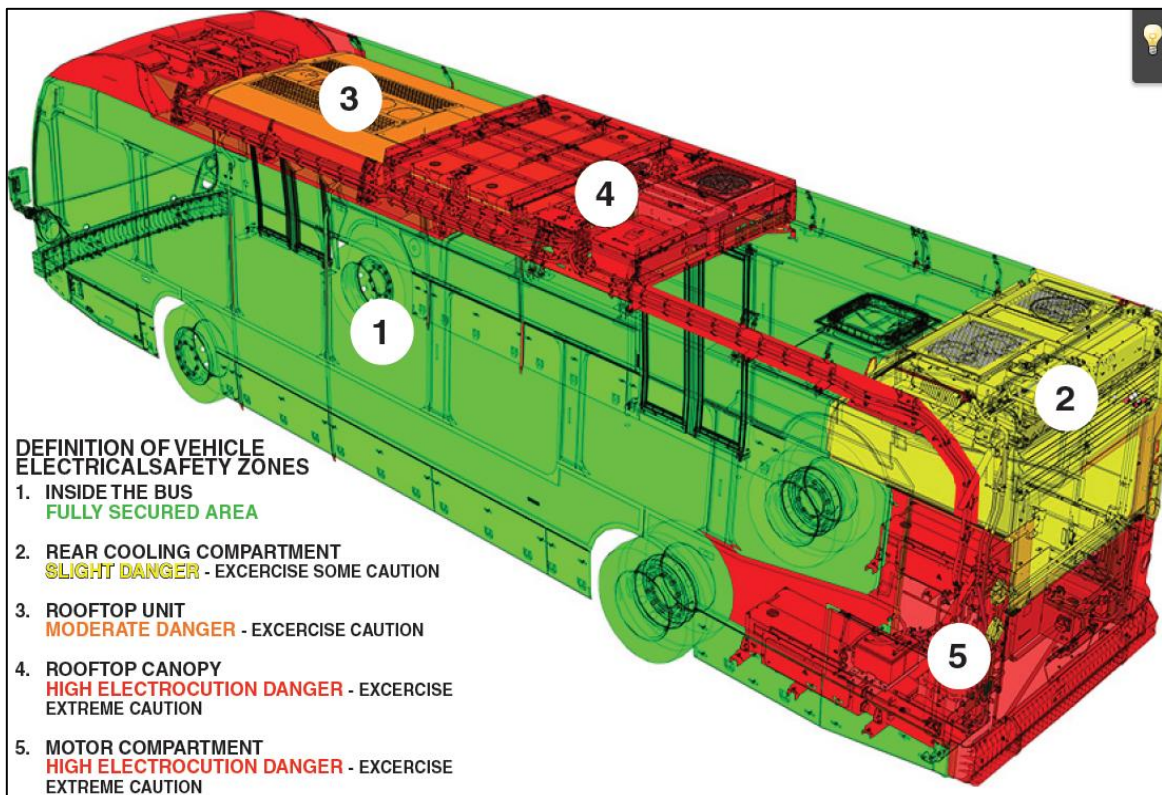


# BEB Familiarization Course Exercise – 1D

## When you arrive at the bus:

- Your instructor should bring participants to a bus and have them examine areas of the bus from a distance as indicated by the image (where possible)
- Once participants have had time to inspect the image and the actual bus, have participants ask and discuss the following questions
- Once the group has finished the exercise, return to the room to continue to the next section



1. Which components in areas 4 and 5 have high voltage?
2. Discuss how would you identify and assess any risk factors for
  - a. Low to No risk areas of the bus
  - b. Moderate to Medium risk areas of the bus
  - c. High risk areas of the bus
3. In the medium high-risk areas, what components have high voltage?
4. Discuss what actions would you need to take to protect yourself in HV areas?

# BEB Familiarization Course Exercise – 1D

Additional points to add:

## **High Risk (shown in Red):**

It is important to understand that a BEB will have multiple sources of energy. Batteries could have anywhere between 1 and 4 units on a single bus. In this example the batteries are located in the engine bay – two batteries and two on the rooftop as backup (on a Proterra bus they are built into the floor). We have areas like the junction boxes which bring the batteries together with devices like inverters or converters.

- Batteries, between 1 and 4 of them. Located in engine bay and/or roof top or built-into the floor.
- Junction Boxes. Bring batteries together with devices like the inverter or an accessories converter.
- Pantograph rails (front of the bus). The area would be at full 750-volt DC potential.

## **Moderate Risk [Orange]**

Still HV but at a lower potential. On this example bus, it is running 208 three-phase AC to run accessories. Accessories include:

- Air Compressor
- HVAC
- Steering

## **Slight Risk [Yellow]**

- Rear cooling compartment

## **Low to No Risk [Green]**

These will be areas similar to what you are used to working with on diesel buses.

- Low voltage. 12/24 VDC systems.
- Passenger Area
- Driver Area
- Front Axle/Rear Axle
- You can safely do a brake job or grease the axle without HV concerns.