



# Power Energy Vehicle Environmental Laboratory



GSPEL Laboratory

GVSC's Ground Systems Power and Energy Laboratory (GSPEL) Team operates the Power & Energy Vehicle Environmental Laboratory (PEVEL) which enables GVSC to perform vehicle-level performance and durability testing on both wheeled and tracked vehicles. The PEVEL's reconfigurable dynamometers can support up to a 5-axle wheeled vehicle with 34,000 lbf-ft. (per wheel) and tracked vehicles up to 42,000 lbf-ft. (per side). The PEVEL offers controlled environmental conditions with temperatures ranging from -60 to 160 °F, humidity levels from 0 to 95 %Rh, wind speeds up to 60 mph, and solar load up to 1,200 W/m<sup>2</sup>

## PEVEL Testing Capabilities

- Transient Road-Load Profiles
- Vehicle Acceleration (TOP 02-2-602A)
- Fuel Economy (TOP 02-2-603A)
- Full-Load Cooling (TOP 02-2-607)
- Speed on Grade (TOP 02-2-610A)
- HVAC Validation (TOP 02-2-708 / TOP 02-2-816)
- Engine Cold-Start Evaluation (TOP 02-2-650)
- Alternator Load Testing (TOP 02-2-601)



*PEVEL - Test Cell Interior*



*Tracked Vehicle Performance Testing*



*Wheeled Vehicle Performance Testing*

## Test Chamber Overview

### Powertrain Specifications

#### Wheeled Vehicle Dynamometers

- Speed: 0 - 1,000 RPM
- Torque: 0 - 34,000 lbf-ft. (per wheel)
- Power: 0 - 160 HP (per wheel)
- Wheel Stations: up to 10 wheels (5 axle)

#### Tracked Vehicle Dynamometers

- Speed: 0 - 1250 RPM
- Torque: 0 - 42,000 lbf-ft. (per side)
- Power: 0 - 800 HP (per side)

### Environmental Control

- Temperature: -60 to 160°F
- Wind: 0 - 60 mph
- Solar: 0 - 1,200 W/m<sup>2</sup>
- Humidity: up to 95% RH

### General Information

- Chamber Door: 14 ft. (W) x 14 ft. (T)
- Dimensions: 20 ft. (W) x 20 ft. (T) x 75 ft. (L)
- Floor Capacity: up to 100 tons
- Wheelbases up to 320 in.
- Track Widths up to 120 in.
- Crane: 25 tons
- Multiple Vehicle Build-up Bays

