

**Mount Beacon Incline Railway
Restoration Society**
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MOUNT BEACON
INCLINE RAILWAY
SINCE 1902

Technical Specifications, Mount Beacon Incline Railway*

Design: Single track, balanced car, upper power station funicular with a pronounced curve along its route

Designer: Otis Elevator Company, Yonkers, New York (now a division of United Technologies Corporation, Hartford, Connecticut)

Construction: Mohawk Construction Company, Mohawk, NY (primary sub-contractor)

Cost: \$165,000 (\$4,061,255 in 2007 dollars)

Current Ownership: Scenic Hudson Land Trust

Vertical elevation: 1,540 feet (470 meters) above sea level

Average Gradient: 64+ percent

Maximum Gradient: 74 percent (for approximately 800 feet of its run). Note: This was the steepest passenger incline in the world when constructed. When returned to service, it will be the third-steepest passenger incline in the world and the second steepest in North America.

Ascent/descent time: 4 1/2 minutes

Maximum Speed: 500 feet per minute

Emergency Breaking Speed: 700 feet per minute

Power: Two 75-horsepower electric motors, 500 rpm, 500 volts DC, later converted to AC. Note: This was the first electrically powered incline railway built in North America. Previously built inclines were steam-powered and later converted to electrical power.

Track and rail bed: standard “cut and fill” railway construction

- **Manufacturer:** Ramapo Iron Works (frogs, switches and idlers)
- **Length:** 2,200 feet
- **Gauge:** 3 feet (narrow gauge)
- **Configuration:** 2-4-2 (single track-way with “Brown patent turn-out” for passing of cars)
- **Lay of Track:** Primarily ground, plus a 225-foot trestle on the upper course with an average height of 10 feet
- **Bents:** 18 (trestle) and 5 (approach to power station) with masonry supports
- **Ballast:** Stone along entire length
- **Idlers:** Placed every 36 feet, 12 inch diameter wheels on straight runs of track, 15 inch diameter wheels on curved sections of track
- **Rails:** 35 lbs per yard

Cable:

- **Manufacturer:** Unknown, but likely to have been John A. Roebling's Sons Co., Trenton, New Jersey. Note: The Roebling family supplied cable to several other North American incline railways and had pioneered the manufacture of steel cable for use in construction projects, to include the Brooklyn Bridge.
- **Type:** 1 3/8 inch steel wire rope, Lang-Lay pattern
- **Weight:** 7,000 lbs.
- **Strength:** 62 tons (124,000 lbs)

Cars:

- **Manufacturer:** Ramapo Iron Works, Hillburn, NY
- **Design:** Open cars with canvas side curtains for inclement weather, wood body over channel iron, 9 each transverse bench seats between 10 bulkheads. Foot platforms and benches were raked at an angle for passenger comfort on the steepest gradient.
- **Length:** 33 feet
- **Width:** 7.5 feet
- **Weight:** 6.5 tons each (13,000 lbs)
- **Wheels:** 24 inches in diameter, 2 double-flanged (outer) wheels, 2 flat (inner) wheels, 8 inches wide
- **Wheelbase:** 20 feet
- **Passenger Capacity:** 54 passengers, 1 conductor per car
- **Carrying Capacity:** 10,000 lbs
- **Color Scheme:** Red (?) or yellow exterior with natural wood interior. Over the years, the cars were also painted off-white and orange

Electricity: The railway cars were illuminated with incandescent lamps and had downward facing headlights mounted at the roof, both front and back. The electric lighting plant was likely furnished by Westinghouse, Church, Kerr & Co., New York City.

**Sources for technical data include: 1904 Annual Report of the NY State Board of Railroad Commissioners; 1908 Annual Report of the NY State Board Public Service Commission; and the 1903 professional trade publication, The Elevator Constructor.*