and all equipment should be braced securely at top, bottom, and intermediate landings Steps should be nonslip The entire manlift should be suspended from the top to prevent bending or buckling of the rails

Handholds (either open or closed type) should be painted a conspicuous color, such as orange or yellow They should be not less than 48 in or more than 56 in above each step and steps should not be less than 16 ft apart

Floor landings or emergency landings should be provided for each 25 ft of manlift travel Clearance between the surface of any landing and the lower edge of the conical guard suspended from the ceiling should be at least 7½ ft The minimum clearance between the center of the head pulley and roof or other construction should be 5 ft

The bottom landing on the up side should have steps to a platform level with the manlift step as it rises to a horizontal position

Floor openings and shear guards. At floor landings, standard 42-in guardrails and 6-in toeboards should be provided around floor openings in such a way as to permit a landing space at least 2 ft wide Rails or guards should have maze or staggered openings or self-closing gates opening away from the manlift (Fig 21-11), and at each floor opening on the upside, funnel-shaped (conical) guards should be installed (Fig 21-12)

Brakes, safety devices, and ladders

A brake, designed to be applied automatically when the power is shut off, should be installed on the motor shaft for direct-connected units and on the input shaft for belt-driven units The brake must be capable of quickly stopping the manlift and holding it when the down side is loaded with 250 pounds on each step

A control rope or rod should be provided within easy reach of both the up and down runs When pulled in the direction of belt travel, the rope or rod should cut off the power and apply the brake A mechanical-electrical device that will automatically shut off the motor power supply and apply an electric brake if the rider fails to alight at the top landing should be installed It should be arranged so that the manlift cannot be started again except from above the upper landing

A secondary safety control located on the top operating floor is required It should be set to operate when the belt has traveled 6 in beyond the point of operation of the primary safety switch, in case the latter fails The device should stop the manlift before the loaded step reaches a point 24 in above the top landing

A fixed metal ladder accessible from both the up and down runs should be provided for emergency exit where the vertical distance between landings exceeds 20 ft It should meet the requirements of existing state laws for ladders except that an enclosing cage should not be provided since the ladder should be accessible from either side throughout its entire run

Inspections

Every manlift should be tested and inspected at least every 30 days On discovery of a defect, the manlift should be put out of operation *immediately* and not used until repaired Each periodic inspection should cover, but not necessarily be limited to, the following items

- Steps
- Step fastenings
- Rail supports and fastenings
- Rollers and slides
- Belt and belt tension
- Handholds and fastenings
- Floor landings
- Guardrails
- Electric switches
- Lubrication
- Warning signs and lights
- Signal equipment
- Drive pulley
- Bottom (boot) pulley and clearance
- Pulley supports
- Motor
- Driving mechanism
- Brake

The safety mechanism of a manlift should be inspected daily for free operation and for accumulations of dirt and grease A manlift should be completely dismantled once every three years and defective or excessively worn parts should be replaced

General precautions

The maximum speed of a manlift belt should not exceed 80 fpm and should be uniform on all manlifts throughout the plant If the lift carries a great deal of traffic, a maximum speed of 60 fpm is recommended