

INSTALLATION PROCEDURES FOR ELLIS MFG PARAPET GUARDRAIL SYSTEM - GRS-P12 AND GRS-P24

GUARDRAIL PROTECTION FOR THE TOP OF PARAPET WALLS

Ellis MFG Parapet Guardrails quickly secure to the top of parapet walls ranging in width of 4" to 12" (GRS-P12) and 4" to 24" (GRS-P24)

PLACEMENT:

Install Ellis MFG Parapet Guardrail no more than 8' apart on center with rail brackets and adjustment handle facing to the inside of the parapet wall. Guardrail should rest directly on top of the flat, clean and stable parapet wall.

SECURE:

Adjustment handle turns easily to open and close the Guardrail and secure it to the parapet wall. Hand tightening usually produces enough force to firmly grip the parapet wall. At least 20 Ft. / Lbs. of torque is needed to safely tighten to the top of a concrete parapet wall. This can usually be accomplished by hand; however, adjustments can also be made with a wrench if more leverage is required. The end of a short screw driver can also be placed in one of two holes on the adjustment handle for faster adjustment.

ADJUSTABLE RAIL BRACKETS:

Adjustable wood rail brackets are quickly adjustable to heights between 12" and 45" above the parapet wall in 3" increments. Once height of rail above working surface has been determined, remove the cotter pin and clevis pin securing the rail brackets. Reposition the rail bracket, sliding it up or down the guardrail, matching its holes to the appropriate holes on the guardrail and insert clevis pin and cotter pin to secure.

BUILDING WOOD RAILING:

Use 2x4 or 2x6 lumber as horizontal rails. Lumber should overlap at least 12" at Ellis MFG Parapet Guardrail System and secure with #10 double headed nails or screws through the nail holes provided.

CABLE RAILING:

Cable should be at least ¼ inch in diameter and may be installed through the holes in the front face of the railing brackets. It should be flagged at a minimum of 6ft intervals with high visibility material. Cables must be properly anchored to structure on both ends of the span to withstand a force of 250 lbs on the top most cable. These are minimum suggested requirements, consult with OSHA / State / Local authorities to ensure the system complies with all guidelines.



Parapet Guardrail System GRS-P24 LOAD TEST

The following load tests performed on 9-24-10 confirm the Ellis MFG Parapet Guardrail (GRS-P24) comply with OSHA's requirement that the "Guardrail System shall be capable of with standing, without failure, a force of at least 200 pounds (890N) applied within 2 inches (5.1 cm) of the top edge, in any outward or downward direction, at any point along the top edge"

It is recommended that spacing of the Ellis MFG Parapet Guardrails (GRS-P24) not exceed 8' center to center. Wood rails should overlap a minimum of 12" at the rail bracket of the Ellis MFG Parapet Guardrail.

Parapet Guard Rail - 24" (GRS-P24) Load Test at 12" Opening

Load PSI	Multiplier	Load Lbs.	Horizontal Deflection
100	1.1	110	0"
200	1.1	220	3/8"
250	1.1	275	5/8"
300	1.1	330	7/8"
350	1.1	385	1 - 1/4"
400	1.1	440	1 - 5/8"

The GRS-P24 parapet guardrail was set into the testing frame at a 12" opening. The handle was tightened by hand onto the steel surface. Gradual pressure was applied by a hydraulic jack. The load was removed and the guardrail returned to its original position.

Parapet Guard Rail - 24" (GRS-P24) Load Test at 24" Opening

Load PSI	Multiplier	Load Lbs.	Horizontal Deflection
100	1.1	110	1/8"
200	1.1	220	1/2"
250	1.1	275	1 - 1/2"
300	1.1	330	2 - 5/8"
350	1.1	385	3 - 3/8"
400	1.1	440	3 - 7/8"

Guardrail was set into the testing frame at an opening of 24". The handle was tightened by hand onto the steel surfaces.

Force was applied to the GRS-P24 within 2" of the top edge with a hydraulic jack. After 220 load pounds the guardrail started to slip upwards and a horizontal deflection of 1/2" was noted. However, the Ellis GRS-P24 proved capable of withstanding the load without failure as an increase in the force applied continued to 440 load pounds.

After load was removed, the guardrail returned to its original position.

