



DESIGN COMPONENTS, INC.

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ROOFTOP METALWALK SYSTEM & SAFETY HANDRAIL "R" INSTALLATION

PART 1 GENERAL

- 1.01 Parallel runs - up and down the slope, ridge to eave.
- 1.02 Perpendicular runs - across roof high ribs, same as the ridge cap.
- 1.03 Use stock lengths of Grating sections and Handrail tubing to reduce waste.
Check roof plans provided by Architect and METALWALK drawings from manufacturer.
- 1.04 Assemble multi-width grating sections by starting with a male/female grating section.
Finish with a male/male grating section.
- 1.05 Support plates are provided for METALWALK grating with handrail and without handrail.
- 1.06 Remove debris and clean roof of shavings from drilling.
- 1.07 Spray cut ends of METALWALK grating sections with Galvanizing Compound or rust inhibitive primer to prevent future rust.

PART 2 TOOL LIST

- 2.01 Power chop saw with metal cutting blade, or Tubing cutter to accept 1-5/8" OD pipe.
- 2.02 Hand Hack saw, 24 or 32 teeth per inch blade.
- 2.03 Allen hex wrench 3/16" or 5/16" size (depending on fitting type).
- 2.04 Ratchet socket set, 3/8" drive, 1/2" hex head socket.
- 2.05 Box or open end 1/2" wrench or adjustable wrench.
- 2.06 Electric screw gun, speed 0-2500 rpm, reversing.
- 2.07 Magnetic 5/16" hex head bit with 1/4" shank drive.

PART 3 PRODUCTS

3.01 PARALLEL RUNS

A. SUPPORT PLATE

1. Maximum support plate spacing 6'-0", locate support plate over roof system 5'-0" on-center purlins. Area to have handrail installed requires 8" wide support plates with (4) pre-punched 5/16" diameter holes on both ends to accommodate vertical post Square Base Flange. Support plate will extend out from the roof panel major rib center line (6") inches.
2. Determine which side of the METALWALK grating the handrail is to be located from drawings
3. Position the slip-on pipe Square Flange Base for the vertical post over the (4) prepunched holes with the (2) setscrews pointed out from the grating to allow room for ease of tightening the setscrews with a wrench. Secure the Square Flange Base to the support plate using (4) 5/16"-18 x 1" bolts with flat washers under each bolt head and the self-locking nut assembly. Tighten the self-locking nuts to a torque of 110 to 150 inch-pounds.
4. Layout spacing of support plates so that the grating sections butt end to end on the center of a support plate. No more than 12" of METALWALK grating should project past the support plate at the ending run.
5. At each location of a support plate apply strips of Neoprene Gasket or Tape Mastic on the top of the major ribs that the support plate will span.
6. Fasten support plate to roof panel major ribs using 1/4-14 x 1-1/8" Self-drilling fasteners, each centered in the (2) narrow sections of the support plate—NOT THE MIDDLE WIDE SECTION.
7. Use an electric screw gun with a magnetic 5/16" head bit set to proper hold-down torque, minimum of 92inch pounds. (*Do not over torque.*)
8. Add a support plate at intersections and termination of runs as required.

B. METALWALK GRATING SECTIONS - PARALLEL RUNS

1. Align METALWALK grating sections parallel to roof panel major ribs.
2. To attach support plate to grating, use (1) hold down clip per 12" plank. Use (2) self drilling fasteners to attach hold down clip to support plate through the wide section of the support plate. Make sure top of clip attaches firmly to ridges of the planks.
3. Use an electric screw gun with a magnetic 5/16" hex head bit set to a proper hold-down torque, minimum of 92 inch pounds.
4. Do not over torque fasteners, this could cause deforming of the METALWALK grating section.
5. **Important** - Check fastener locations and penetrations through the support plate so that the fasteners will *not* penetrate the roof panel major rib area.

3.02 PERPENDICULAR RUNS

A. HAT SECTIONS

1. Locate and mark a centerline where the METALWALK grating sections will be perpendicular to the roof panels.
2. Layout spacing of hat sections that will support the METALWALK grating to be located over the major high ribs of the roof panels. **MAXIMUM SPACING OF (6'-0") ON CENTER.**
3. Apply a strip of Neoprene Gasket or Tape Mastic to the under side of the two outer flanges of the hat section.
4. Align and center hat section over roof panel major rib.
5. Fasten the hat section to the roof panel using 1/4-14 x 1-1/8" self-drilling fasteners.
6. Use an electric screw gun with a magnetic 5/16" hex head bit set to a proper hold-down torque, minimum of 92 inch pounds.

B. METALWALK GRATING SECTIONS - PERPENDICULAR RUNS

1. Align METALWALK grating sections perpendicular to roof panel major ribs.
2. To attach hat section to grating, use (1) hold down clip per 12" plank. Use (2) self drilling fasteners to attach hold down clip to hat section. Make sure top of clip attaches firmly to ridges of the planks.
3. Use an electric screw gun with a magnetic 5/16" hex head bit set to a proper hold-down torque, minimum of 92 inch pounds.
4. Do not over torque fasteners, this could cause deforming of the METALWALK grating section.
5. **Important** - Check fastener locations and penetrations through the hat section so that the fasteners will *not* penetrate the roof panel major rib area.

C. INTERSECTIONS

1. Locate a hat section where two METALWALK grating sections are butted end to end, on perpendicular runs. Align METALWALK grating sections so they are equally spaced on the top of the hat section.
2. Locate a hat section where METALWALK grating sections butt into the side of a parallel run. Install hat section over roof panel major ribs, but not to exceed 12" from side of parallel run.
3. Use (1) hold down clip per 12" plank. Use (2) self drilling fasteners to attach hold down clip to hat section. Make sure top of clip attaches firmly to ridges of the planks.



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3.03 HANDRAIL

A. VERTICAL POSTS

1. Insert pre-cut 42-3/4" tubing, 1- 5/8" OD into the Square Flange Base on support plate, make sure it bottoms out, secure by tightening the (2) setscrews to 200-270 inch pounds (16.7 ft/lbs).
2. Mark Vertical Posts from the top at 19" for receiving mid-rail Cross slip-on fitting (top of fitting).

B. MID-RAIL

1. Determine if mid-rail is to be located on the inside or outside of the railing.
2. Slide on Vertical Posts a Cross slip-on fitting with the open barrel to the side to receive mid-rail.
3. Secure temporarily in place at the pre-marked 19" (top of fitting) by tightening one setscrew lightly with Allen hex wrench.
4. Measure the distance from center to center of the two end vertical posts and add 2-1/4". Cut lengths from the standard 1- 5/8" OD tubing and join together with the pre-tapered end or if cut to length, join together at the Vertical Post Cross slip-on fitting. If the tubing joint is mid-way between Vertical Posts an External Coupling (optional) slip-on fitting can be installed.
5. Assemble mid-rail by sliding tubing through all of the Cross slip-on fittings, adjust as necessary for alignment, tighten all setscrews to 200-270 inch pounds (16.7 ft/lbs).
6. Install Metal Plug in the mid-rail tubing at each end or the Vertical Post OR install Elbow with a piece of vertical piece of tubing to connect with Elbow on top rail where handrail needs to extend past the end of the Vertical Post.

C. TOP RAIL

1. Measure the distance from center to center of the two end vertical posts. Cut lengths from the standard 1- 5/8" OD tubing so that they will butt together at the Vertical Post Tee or join together with the pre-tapered end. If the tubing joint is mid-way between Vertical Posts an External Coupling (optional) slip-on fitting can be installed.
2. Slide on each Vertical Post a Tee slip-on fitting with the setscrew pointed away from METALWALK grating.
3. Slide the 1-5/8" OD tubing through the Tee slip-on fittings. At each end Vertical Post install an Elbow. The top rail tubing should be resting on the Vertical Posts.
4. Secure in place by tightening setscrews with Allen hex wrench to 200-270 in. lbs. (16.7 ft/lbs).

D. DIAGONAL SUPPORT - OPTIONAL AT RAIL-END POST (ASTM)

1. Before installing the top railing, on the desired rail-end vertical post, install Adjustable Elbow slip-on fitting, direct it out from railing at 90 degrees.
2. Use a pre-cut 42-3/4" post OR cut tubing to proper length and insert into the Adjustable elbow and lightly tighten setscrew.
3. Install on the tubing end Angle Base OR Adjustable Flange, and lightly tighten setscrews.
4. Place a support plate across roof panel major high ribs, positioned under the end of the diagonal tubing. Align Angle Base OR Adjustable Flange on the center 4" wide section of support plate and mark location of the mounting (4) holes of the Flange to the Support Plate (if not already pre-punched).
5. Remove support plate, center punch, and drill the (4) 5/16" diameter holes.
6. Secure the Angle Base OR Adjustable Flange to the support plate using (4) 5/16"-18 x 1" bolts with flat washers under each bolt head and the self-locking nut assembly. Tighten the self-locking nuts to a torque of 110 to 150 inch-pounds.
7. Install support plate, slip together tube into flange, attach to roof panel per Part 3.01, Section A- 5, and 6.
8. Secure in place by tightening setscrews with Allen hex wrench to 200-270 in. lbs. (16.7 ft/lbs).

E. FINAL INSPECTION

1. Check for proper installation, proper torque setting of all bolts, nuts and setscrews, remove any metal shavings, all tools and equipment.
2. Spray cut ends of METALWALK grating sections with Galvanizing Compound or rust inhibitive primer to prevent future rust.

END OF SECTION