

Standardized Guidelines for Installation of Razor Ribbon® Expanded Metal Razor Mesh Panels

PART 1 GENERAL

1.01 SAFETY PRECAUTIONS

Install all high security expanded metal razor mesh fencing system following all OSHA and state approved safety regulations.

1.02 REFERENCES

ASTM F2548-12 Standard Specification for Expanded Metal Fence systems for Security Purposes

ASTM F2780-09 Standard Specification Guide for Design and Construction of Expanded Metal Security Fences

ASTM F1083-06 Standard Specification for Pipe, Steel, Hot-Dipped Zinc Coated (Galvanized) Welded for Fence Structures.

1.03 QUALITY ASSURANCE

Installers should be experienced with the installation of expanded metal panel fencing, high security chain link fencing and/or Razor Ribbon barbed tape.

PART 2 PRODUCTS

2.00 MANUFACTURER

A. EXPANDED METAL RAZOR MESH PANELS

1. Atkore – Razor Ribbon
250 Capital Drive
Hebron, Ohio 43025 U.S.A.

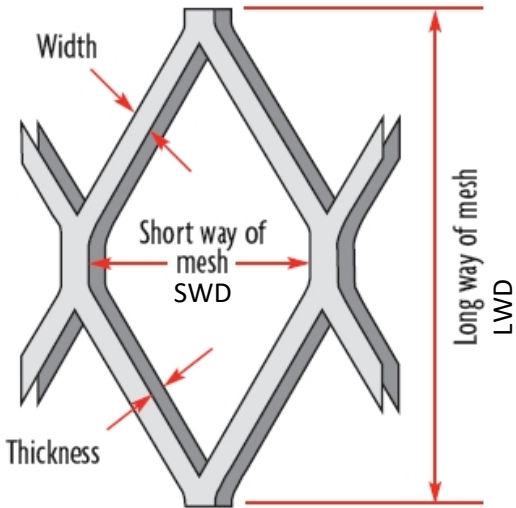
B. FRAMEWORK

1. Atkore – Allied Tube & Conduit Corporation
16100 South Lathrop Avenue
Harvey, Illinois 60426 U.S.A.

2.01 MATERIALS

A. EXPANDED METAL RAZOR MESH PANELS – The expanded metal razor mesh panels shall conform to the following:

1. Type – 3/4" -#9 RAISED, HDG finish or SS
2. Panel Size (width) – 60"
3. Panel Size (height) – 96"
4. Strand Width – 0.150"
5. Strand Thickness – 0.134"
6. SWD – 0.923"
7. LWD – 2.000"
8. Percent open area (panel only) – 68%
9. Panel weight per sq. foot – 1.98 lbs.
10. Razor Ribbon Topper Options –
 - a. Ø18" Flat Razor Wrap Medium Barb Stainless Steel; Installed 6" Above, 12" Below Top of Panel



B. SECURITY FITTINGS – The expanded metal panels shall be installed using retro round rail fittings sized to framework specific to project.

1. Bands – 11ga x 1" with slotted hole
2. C-Clamps – 11ga x 1" with 2 slotted holes
3. Bar Clamps – 11ga x 1" with 2 slotted holes

All fittings use 3/8"-16 x 2-1/2" SS carriage bolts and breakaway nuts bolts.

C. FRAMEWORK

All terminal posts, line posts and rails shall be Schedule 40 or SS40 pipe conforming to ASTM F1083-06. Line posts shall be set per contract drawings or by manufacturer recommendation. Posts shall have a pressed steel dome cap. Rails shall be secured with offset line rail clamps. All framework fittings shall conform to ASTM F626 and shall be a minimum of 14ga pressed steel.

PART 3 EXECUTION

3.01 FRAMEWORK

1. All installations shall be laid out by contractor in accordance with construction plans.
2. Posts should be set in concrete appropriate for local conditions.
3. Install posts plumb and rails level per ASTM F2780-09 and industry standard practices.
4. Post spacing shall allow for two expanded metal razor mesh panels per section and shall vary based on height and topography per manufacturer's recommendation.

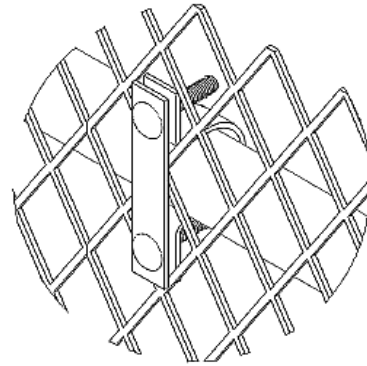
3.02 RAZOR MESH PANEL ATTACHMENT (STANDALONE)

Warning: Razor Mesh Panels are extremely sharp, extreme care should be used when handling product. Additionally, proper PPE must be worn, at minimum Razor Ribbon approved Kevlar reinforced gloves. **Failure to use gloves may result in personal injury.**

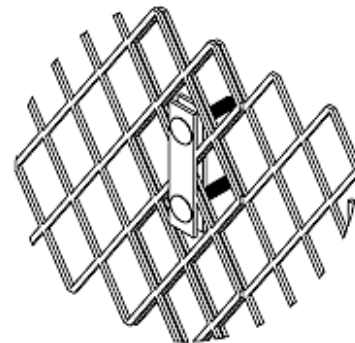
1. Expanded metal razor mesh panels can be installed with the LWD or long way of the diamond running vertically, or horizontally. Most applications use vertically mounted long way of diamond. However, both mounting directions are equally effective.
2. Expanded metal razor mesh panels attach to posts and rails using clamps and bands equally spaced every 15"-18".
3. Clamps are sized to fit posts on the non-attack side of the fence and hold razor mesh in place with flat bar clamp on the attack side.
4. Begin installation at a terminal post by attaching the panel flush with the attack side of the fence using the correct size band for the terminal post. Typical installation orients the barbed tape (where applicable) facing the attack side of the fence.

Note: To assist with installation it is recommended to hold the panel in place by using three wire ties. Wire ties should be placed near the top of the panel to temporarily hold panels in place while bands and clamps are installed. Wire ties may be left on the fence or removed at the customer's discretion after clamp installation is complete.

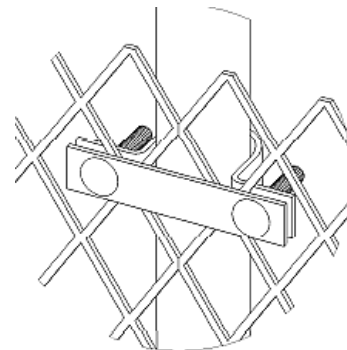
5. Attach mesh at the rails (top, mid or bottom) using clamps in a similar manner. (Clamps shall be placed 15-18 inches in both vertical and horizontal directions)
6. Razor mesh panels shall overlap a minimum of two diamonds or 2 inches on each end and be secured to each other with bar clamps spaced equally along the vertical height of the fence between posts.
7. Razor mesh panels additionally may overlap at line posts and are attached at the line posts with c-clamps.
8. For permanent installations, Razor Ribbon recommends the use of breakaway nuts with standard carriage bolts. The carriage bolt round head should always be facing the attack side. Once enough torque is applied to the breakaway nut the hex part will break off and will not be easily removed. For temporary installations, standard hex nuts and carriage bolts may be used.



RAIL DETAIL

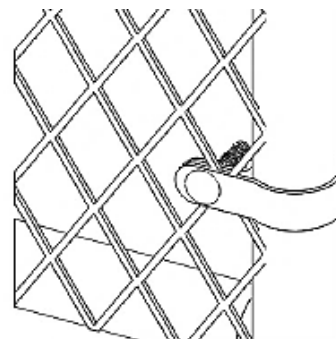


OVERLAP DETAIL



LINE POST DETAIL

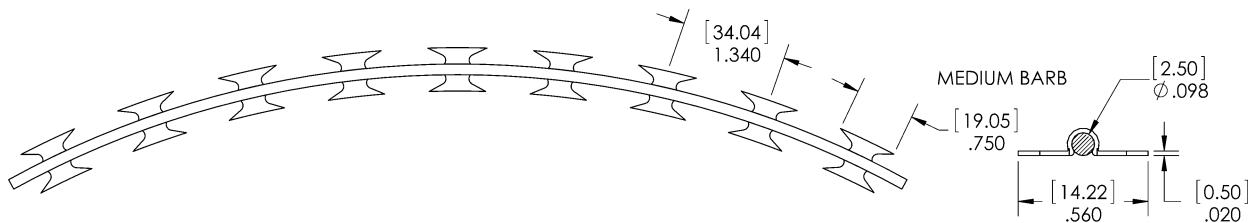
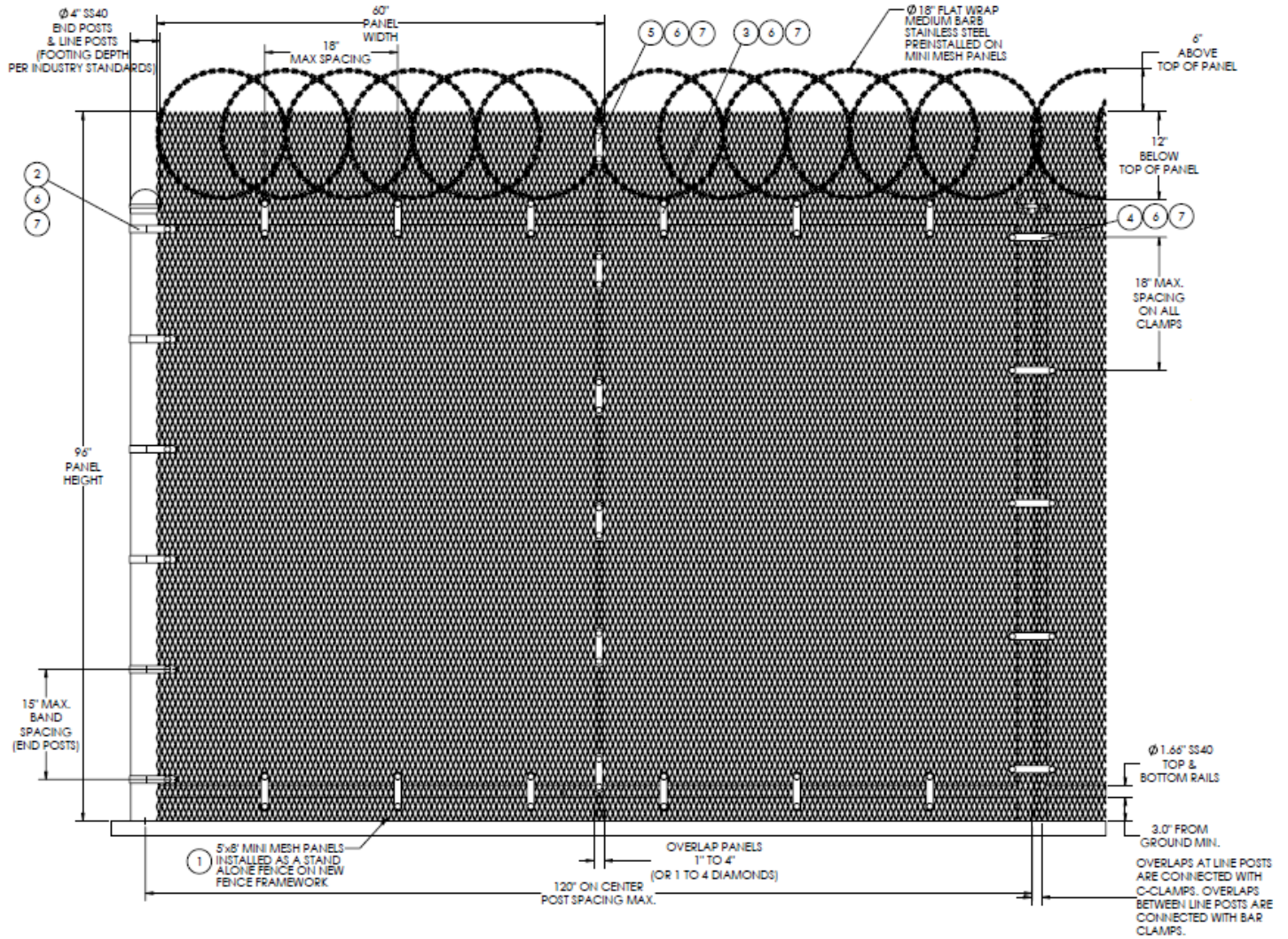
(STANDALONE ONLY)



BAND DETAIL
 (STANDALONE ONLY)

TYPICAL STANDALONE SECTION

Rail, Line, Terminal, Overlap



Round Post Fittings for Razor Mesh Panel Retrofit Installations



USED TO CONNECT RAZOR MESH PANELS TO LINE POSTS AND RAILS

USED TO CONNECT MESH PANELS TO EACH OTHER BETWEEN LINE POSTS

Retro-Fit C-Clamp 1" x 11ga HDG

| Available in: | Weight |
|---------------|--------|
| 1-5/8" | .54 |
| 2" | .58 |
| 2-1/2" | .64 |
| 3" | .73 |
| 4" | .88 |

2 each 3/8"-16 x 2-1/2" standard square carriage bolts required for each clamp. Nuts and bolts are provided with the clamps.



USED TO CONNECT RAZOR MESH PANELS TO TERMINAL POSTS

Retro-Fit Band 1" x 11ga HDG

| Available in: | Weight |
|---------------|--------|
| 1-5/8" | .32 |
| 2" | .35 |
| 2-1/2" | .40 |
| 3" | .45 |
| 4" | .53 |

1 each 3/8"-16 x 2" standard square carriage bolts required for each clamp. Nuts and bolts are provided with clamps.



USED TO CONNECT RAZOR MESH PANELS AT OVERLAP

Retro-Fit Bar Clamps 1" x 11ga HDG

| Available in: | Weight |
|---------------|--------|
| 1" x 5-1/4" | .58 |
| 1" x 6-1/4" | .66 |

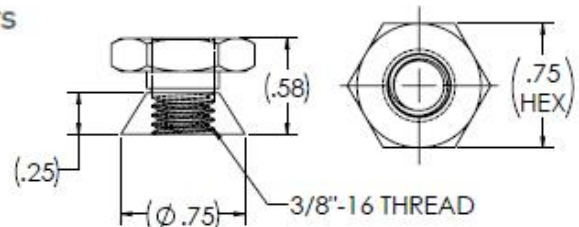
2 each 3/8"-16 x 2-1/2" standard square carriage bolts required for each clamp. Nuts and bolts are provided with the clamps



BREAKAWAY SECURITY NUTS

Available in:
 3/8"-16, 3/4" Hex Drive

Materials:
 304 Stainless Steel



USED TO SECURELY FASTEN RAZOR MESH PANELS (TAMPER-RESISTANT)

For use with 3/8"-16 standard square carriage bolts. Carriage bolts available hot dip galvanized or stainless steel.