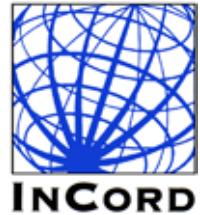
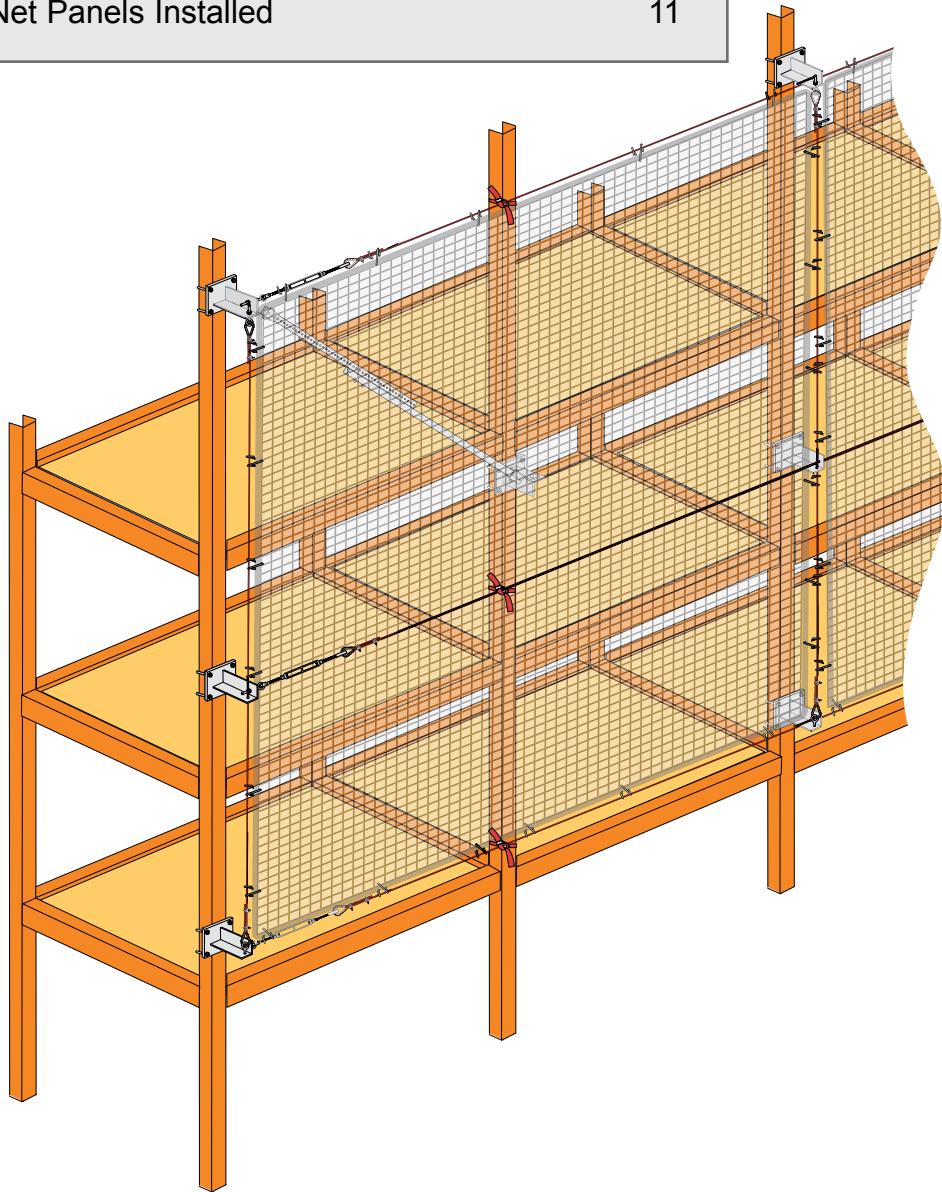


## Installation Instructions

# Offset Mount Rack Guard with diagonal bracing on uprights



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## INTRODUCTION INDUSTRIAL RACK GUARD SYSTEM



The InCord SURE-GUARD™ Industrial Rack Guard System is designed with the highest degree of safety in mind, using the highest grade materials within the industry. The shock-absorbing netting for rack guard systems is made of high tenacity synthetic mesh designed to meet the most rigorous demands of warehouse rack protection. SURE-GUARD™ safety netting has been tested to exceed ANSI® A10.11-1989 safety standards for fall protection with a 2x safety factor applied to all designs.

InCord rack net panels are bordered with synthetic rope and secured to an external wire and metal framework with wire clips and ties spaced every 12 inches. Structural hardware including extensions, angles, mounting brackets, turnbuckles and eyebolts are manufactured from heavy gauge steel and protected with galvanized or powder coat finishes.

SURE-GUARD™ is supplied in a variety of mesh size and strengths from 250 ft-lb light load capacity netting for small package protection systems to 6000 ft-lb heavy mesh safety netting for full pallet protection.

### Conditions Requiring a Rack Guard System

Industrial rack guard systems are designed to help create a safe working environment in and around storage racks protecting inventory and personnel against accidents and loss.

Rack guard systems are ideal for providing a fall protection barrier for single racks, in the flue space between back-to-back racks, and for gravity-flow racks in any type of warehouse, distribution center, or manufacturing environment.

A well engineered rack guard system will meet and exceed OSHA requirements for elevated material handling areas requiring fall protection as part of an overall safety plan. OSHA 1926.502.

General safety requirements for storage systems are outlined in OSHA standard 1926.250. The employers responsibility for creating a safe working environment within an elevated work area is governed by OSHA standard 1926.501.

### Types of Rack Guard Systems

For storage systems with no package or pallet overhang beyond the rack beam/shelf, a flush mounting configuration is used. The safety netting is attached directly to against the rack frame.

When inventory or pallets overhang the rack, an offset mounting system is used. In this configuration the safety netting is attached to tensioned cables mounted on steel offsets.

The typical industrial rack guard system may use any combination of the two basic configurations. And in addition, steel extensions may be used to raise the netting for protection of the top most part of a rack.

### Installation

Mounting brackets and braces used to frame the safety net must be secured to a suitable working surface, and installation of all support cabling must follow the instructions outlined in this manual.

No substitute of material is acceptable. Any damaged netting, support arms, cabling or fittings must be reported to the work site supervisor immediately.

These instructions have been written for a general type of offset mount system and may vary slightly from your specific system.

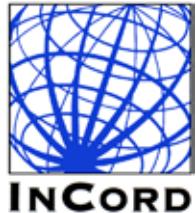
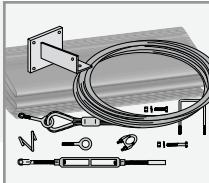
### Inspection and Testing - See ANSI® A10.11-1989

Rack Guard nets and hardware shall be inspected by a competent person<sup>1</sup> after installation. Additional inspections shall be made after alterations, repair, and impact loading.

<sup>1</sup> "...capable of identifying existing and predictable hazards in the surroundings or working conditions that are hazardous or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them". ANSI® A10.11-1989

## PARTS LIST

### COMPONENT IDENTIFICATION



**Unpack all support components, cabling, fittings and netting.** Check all pieces against the packing slip for description, quantity, and lengths before proceeding with installation. Check the safety netting for any cuts or tears in the net or rope cording. Contact INCORD if anything is missing, not to length, or if any portion of the netting is damaged. Do not substitute any installation hardware or net material.

Match all components and net panels to their placement on the design layout sheets using the attached tags. In some instances, custom lengths of uprights, offsets and cabling must be matched to a specific work area.

Your components may differ in appearance from those pictured on this page. This is for reference and basic identification only.

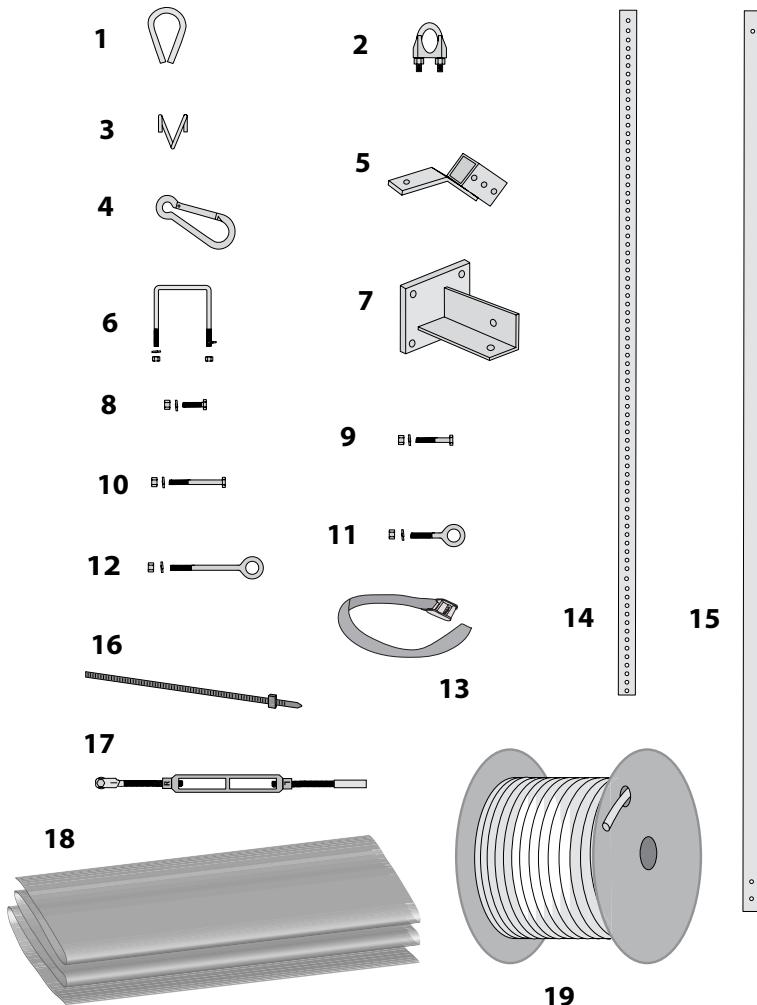


**Read all Instructions carefully** before installing the Industrial Rack Guard System. Keep in mind that safe practices must always be used during installation, testing, inspection, maintenance, and removal.

#### Components:

1. Thimble, one per cable end
2. Wire Cable Clamps, two per cable end
3. ICE Clip, quantity per system\*
4. Snap Hook, quantity per system\*
5. Diagonal Brace Attachment, two per brace
6. U-Bolt, 4 inch, two per offset
7. Offset Bracket, quantity per system
8. Hex Head Bolt, 3/8" x 1", one per brace
9. Hex Head Bolt, 3/8" x 3", two per brace
10. Hex Head Bolt, 3/8" x 5", two per brace
11. Eyebolt, 3/8" x 2-1/2", one per brace
12. Eyebolt, 3/8" x 6", quantity per system
13. Tension Strap, quantity per system
14. Adjusting Brace, 6 feet
15. Brace, 8 feet
16. Nylon Cable Tie, quantity per system
17. Turnbuckle, quantity per system
18. Net Panels, quantity per system
19. Wire Cable, 1/4" or 3/8", length per system

\* Snap hooks are supplied with all net panels with exception of web bordered panels (M-3000) that are supplied with ICE clips.



## OFFSETS AND BRACING ASSEMBLY AND INSTALLATION



**Note:** Reference the layout sheets supplied with your installation along with these instructions.

All offsets must be mounted center line to each other in a horizontal plane.

### Step 1. Install Upper Offsets

Install offsets onto the numbered frame uprights per layout sheet using 4 inch U-bolts (2 each).

**Note:** All offsets to be oriented in such a way that the hole in the horizontal plane of the bracket is closer to the rack and the hole in the vertical plane is farther away from the rack. See illustration detail.

### Step 2. Install Lower Extension Brace Offsets

Install the lower brace offsets on the 2nd upright in from each end either just above or just below the top load beam. For two bay runs, both of these offsets are mounted on the middle upright, one just above the other. Assemble each offset with 4 inch U-bolts (2 each). Tighten securely.

### Step 3. Install Diagonal Brace Assembly

Assemble one DBA (diagonal brace attachment) to the 6 foot adjusting brace (DB6) and one DBA to the single hole end of the 8 ft brace (DB8). Assemble each with a 3/8" x 3" bolt, nut and lockwasher.

Assemble the adjusting brace DB6 to the upper offset with a 3/8" x 2-1/2" eyebolt (eye facing down), nut and lockwasher. See illustration details.

Assemble brace DB8 to the lower offset with a 3/8" x 1" bolt, nut and lockwasher. See illustration details.

Pivot the two brace assemblies together and fasten with two 3/8" x 5" bolts, nuts and lockwashers.

If necessary loosen and adjust the vertical position of the upper offset.

Tighten all hardware and repeat assembly for second brace on the opposite side of the rack.

### Step 4. Install Lower Offsets

Install the offsets to the frame uprights per layout sheet. Assemble with U-bolts (2 each). The offsets should be mounted center-line with through holes aligned in a horizontal plane. Tighten securely.

**Note:** The center-line of the lower offset installation is determined by the height of the net panel as measured from the top offset bracket.

### Step 5. Install Eyebolts to Upper & Lower Offsets

Install 3/8" x 6" horizontal and vertical eyebolts to the offsets as shown in the illustration and indicated in the layout sheets. Tighten securely.

Thread the retaining nut on only a few turns allowing for maximum adjustment later. Do not tighten at this time.

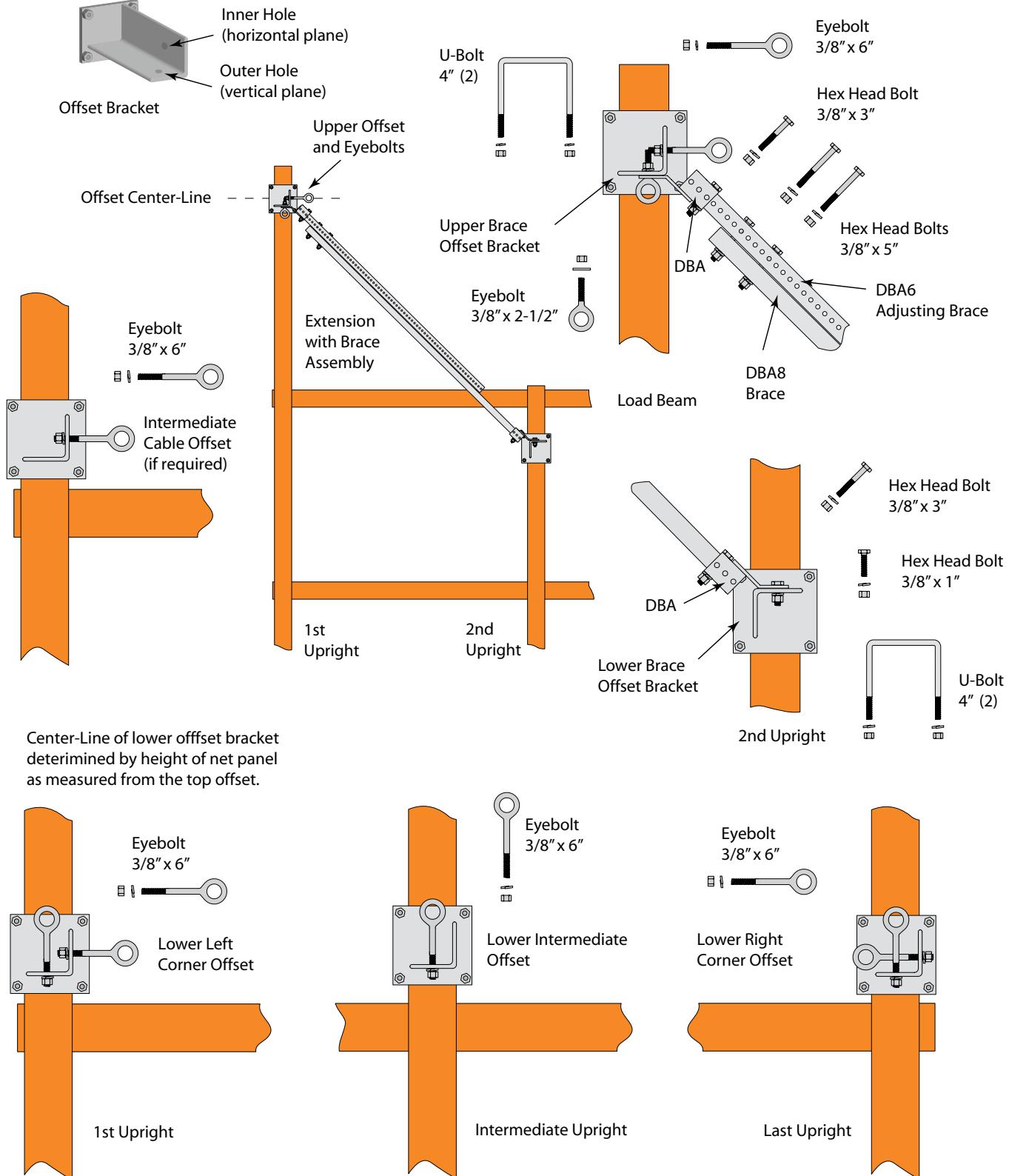


**Note:** If your system requires intermediate cables, proceed with step 6, if not, skip to Step 7.

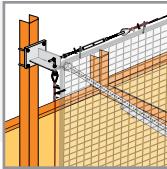
### Step 6. Install Intermediate Cable Offsets

Install offsets to the frame uprights per layout sheet. Assemble with U-bolts (2 each). The brackets should be mounted center-line with through holes aligned in a horizontal plane. Tighten securely.

## OFFSETS AND BRACING ASSEMBLY AND INSTALLATION



## CABLES AND NETTING ASSEMBLY AND INSTALLATION



### Step 7. Install Turnbuckles

Refer to the layout sheets for placement of the turnbuckles. Install the jaw end of the turnbuckle to the eyebolt. Longer runs of cable may require two turnbuckles chained together by attaching eyes to jaw ends. Note alternate turnbuckle installation.

Expand each turnbuckle to within 1/2 inch of its threads for maximum cable adjustment.

### Step 8. Install Thimbles

Assemble a thimble to each eyebolt or turnbuckle to which the horizontal cable will be attached. Twist open and close the thimble using two pliers.

### Step 9. Precut Horizontal and Vertical Cables

Using the cut cable sizes on the layout sheets, pre-cut the cables using a cable cutter. Cable lengths are the overall length +4 feet.

### Step 10. Install Horizontal and Vertical Cables

Pass cables through the clear holes in the upper, lower and intermediate offsets. Adjust the cables to reach each end of the rack. See illustration.

Note: all holes must be center line to each other. Make adjustments as necessary.

Place two cable clamps on the free end of each cable run and assemble as follows:

Thread the cable through the eye, around the thimble and through the two cable clamps. Pull slack out of the cable and tighten the clamps as shown in the illustration detail.

Repeat this installation for each cable end.

Tension cables by adjusting turnbuckles and eyebolts so that there is no sag in the cable runs.

### Step 11. Install Net Panels

Be sure that the mesh panels are placed properly per layout sheets, and height and length are oriented correctly.

Snap hooks are supplied with all net panels with exception of web bordered panels (M-3000) that are supplied with ICE clips.

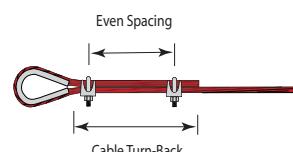
Attach each panel at its corners to an offset with a nylon tie, temporarily keeping maximum length to each tie until all ties are in place.

Secure the center of each side to the vertical and horizontal cables with an ICE clip/snap hook.

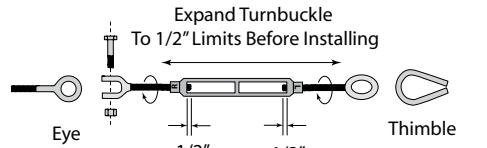
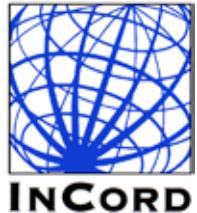
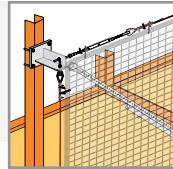
Finish by installing ICE clips /snap hooks one foot on center along all four sides of the panel.

Each panel needs to be independently clipped. Do not attach two net panels to a common cable using the same ICE clip/snap hook.

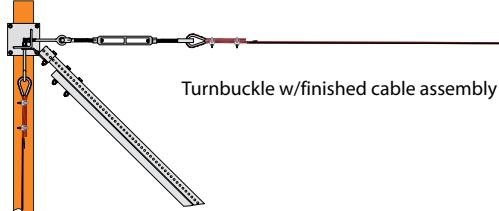
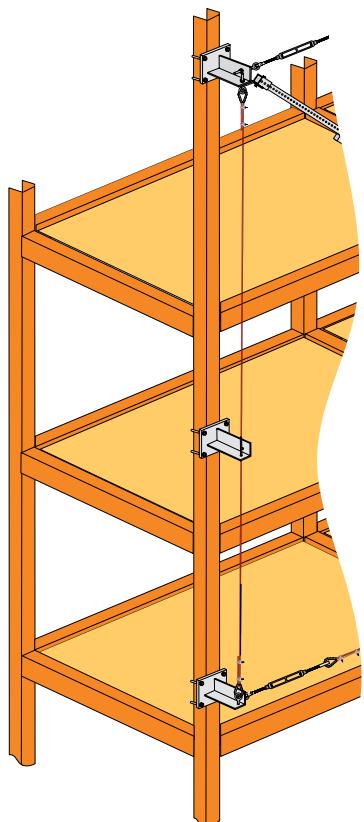
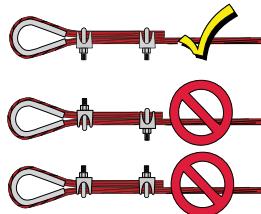
Cable Clamp Assembly and Torque Specifications		
Clamp Size (in)	Cable Turn-Back (in)	Torque (ft-lb)
1/4	4-3/4	15
3/8	6-1/2	30



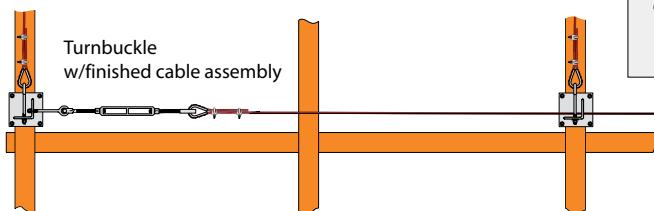
## CABLES AND NETTING ASSEMBLY AND INSTALLATION



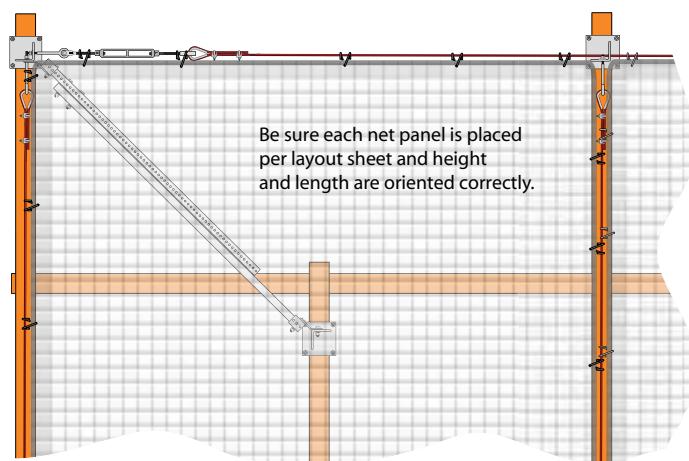
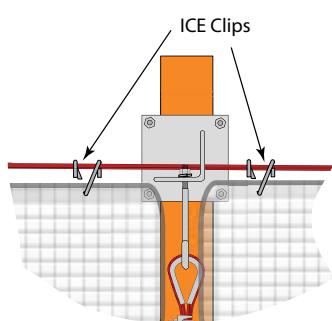
Install Correctly and Torque to 15 ft-lb for 1/4" Cable  
Torque to 30 ft-lb for 3/8" Cable



Alternate Turnbuckle Installation used to break long cable runs into smaller sections.

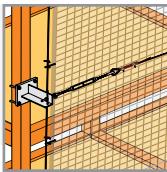


Horizontal Cable Lengths are overall length +4 ft



Snap hooks are supplied with all net panels with exception of web bordered panels (M-3000) that are supplied with ICE clips.

## INTERMEDIATE CABLES ASSEMBLY AND INSTALLATION



**Note:** If your system requires intermediate cables, proceed with installation, if not, skip to Step 17.

The intermediate cables are installed on the outside of the net panel to provide additional support to the safety net system.

Tensioning straps (cinch straps) are used to secure the net panel to all intermediary uprights that the horizontal cable is not normally attached to.

### Step 12. Install Eyebolts to Intermediate Offsets

Install 3/8" x 6" horizontal eyebolts to the end offsets as shown in the illustration and indicated in the layout sheets. Tighten securely.

### Step 13. Install Turnbuckles

Refer to the layout sheets for placement of the turnbuckles. Install the jaw end of the turnbuckle to the eyebolt. Longer runs of cable may require two turnbuckles chained together by attaching eyes to jaw ends.

Expand each turnbuckle to within 1/2 inch of its threads for maximum cable adjustment.

### Step 14. Install Thimbles

Assemble a thimble to each eyebolt or turnbuckle to which the horizontal cable will be attached. Twist open and close the thimble using two pliers.

### Step 15. Install Intermediate Cables

Pass a pre-cut horizontal through the clear holes in the intermediate offsets. Adjust the cable to reach each end of the rack. See illustration.

Place two cable clamps on the free end of the cable.

Thread the cable through the eye, around the thimble and through the two cable clamps. Pull slack out of the cable and tighten the clamps as shown in the illustration detail on previous page.

Repeat this installation for each cable end.

Tension cables by adjusting turnbuckles and eyebolts so that there is no sag in the cable runs.

### Step 16. Install Tensioning Straps

Attach a safety tension strap around all intermediary positions where a unsecured horizontal cable crosses an upright. This does not include any cabling already secured to an upright.

Pass the tension strap around the upright, through the net, and around the cable. Attach the strap to itself and then cinch so that it is tight without slack. Do not tension to cause distortion of the support cabling. Tie the loose strap end in a knot at the buckle. See illustrations.

**Note:** Tension Strap is threaded from the bottom up as shown with the "PRESS" tab on top.



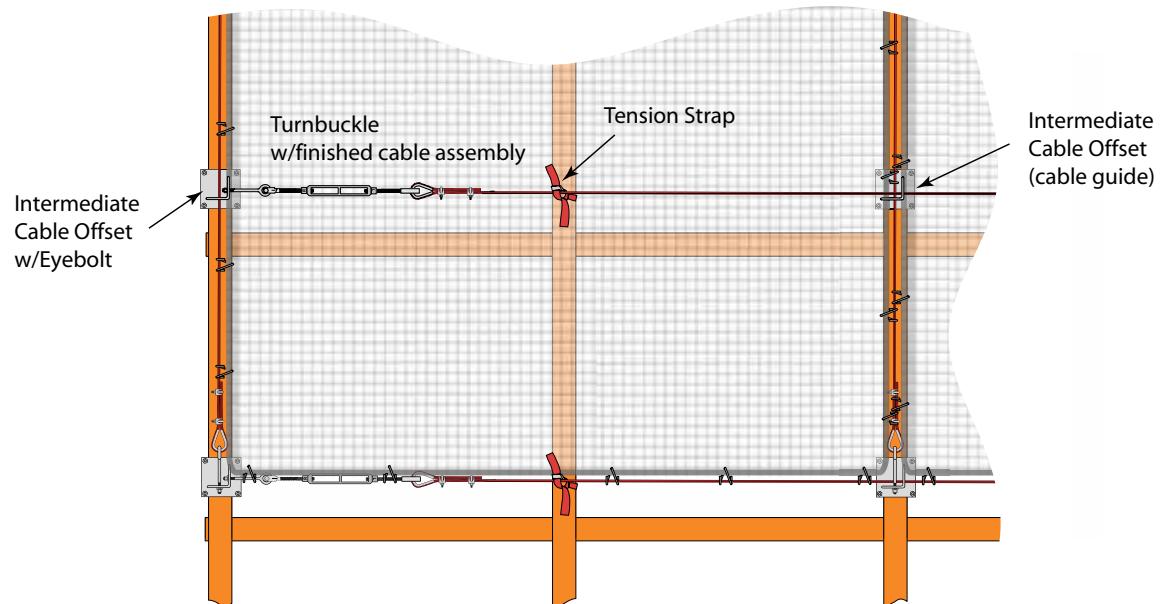
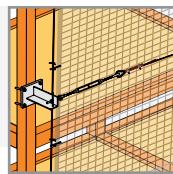
### Step 17. System Check

Check entire rack net system and tighten any loose cables, nylon ties, tension straps, ICE clips and nuts.

System checks should be made on a scheduled basis, typically once a week to inspect for damaged net panels, loose fasteners or cable. Additional inspections must be made after alterations, repair, or following any impact loading.

If welding or cutting operations occur above a net panel, weld protection must be provided for that area, and more frequent inspections should be conducted in proportion to the level of dangers involved.

## INTERMEDIATE CABLES ASSEMBLY AND INSTALLATION

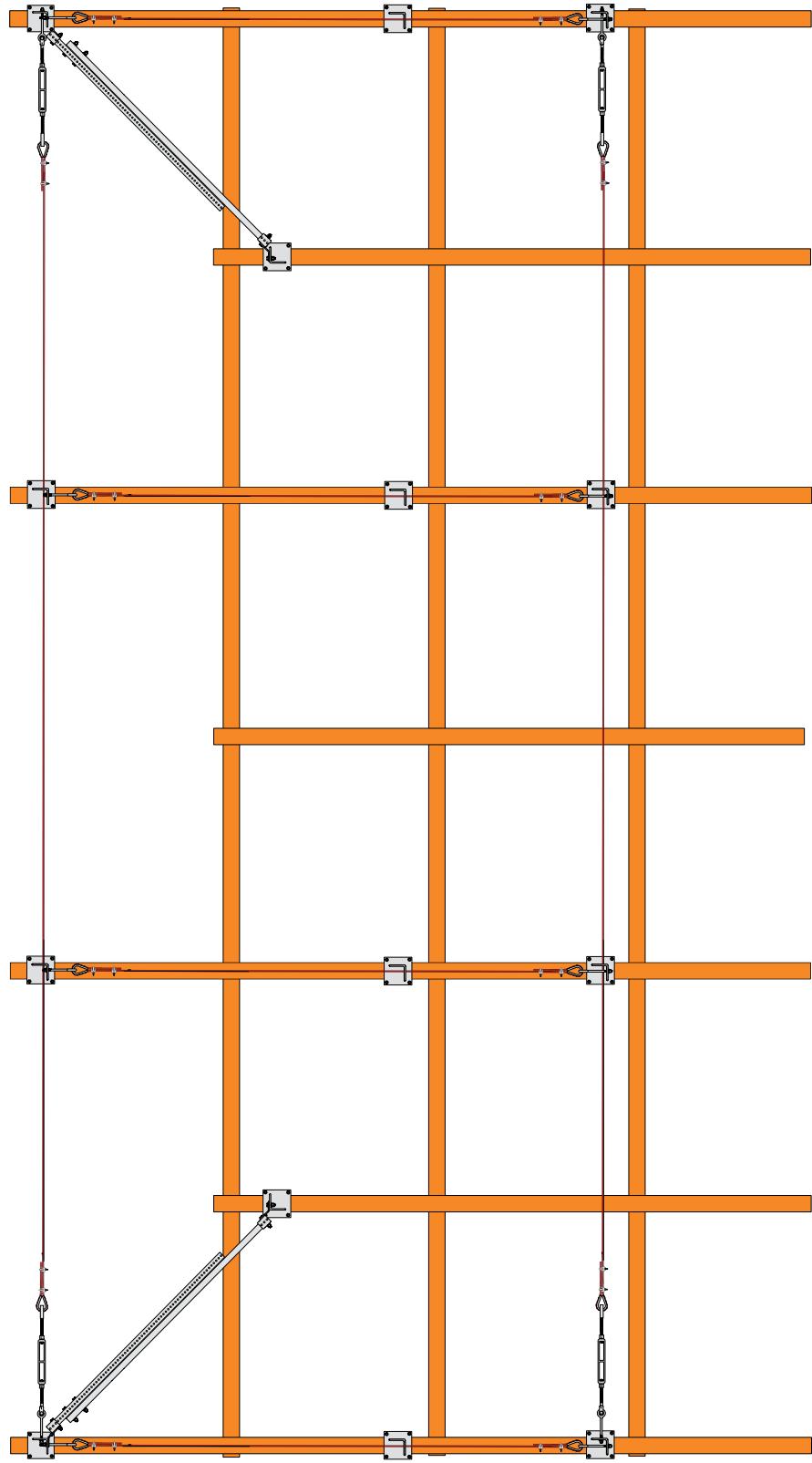
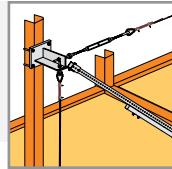


Horizontal Cable Lengths are overall length +4 ft

Pass the tension strap around the upright, through the net, and around the cable.

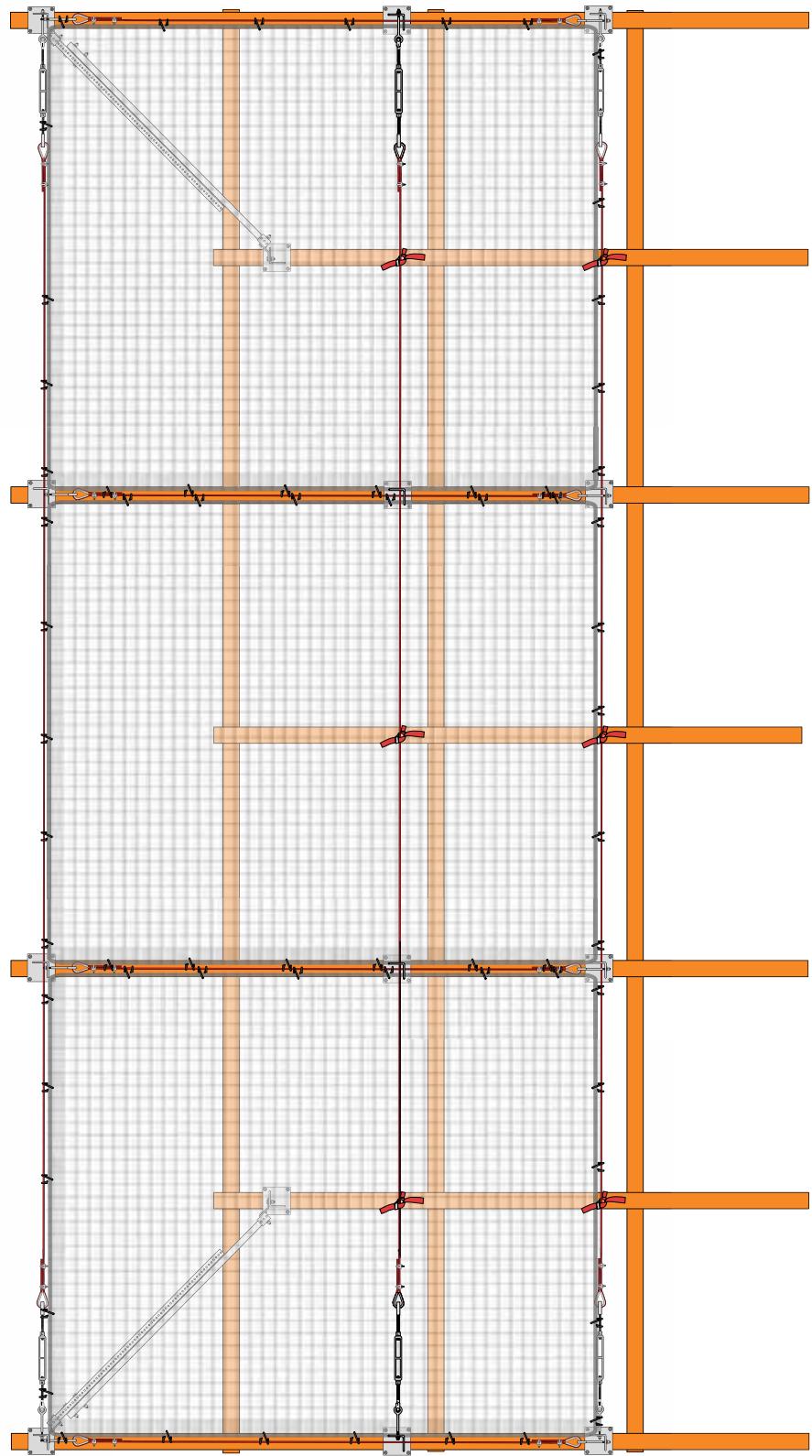
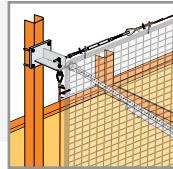


## OFFSET MOUNT RACK GUARD FRAMEWORK AND CABLES



Installation Description:  
Offset Mount Net Panels with Bracing.

## OFFSET MOUNT RACK GUARD NET PANELS INSTALLED



Net Panels secured at one foot centers  
with Wire Clips.

**OFFSET MOUNT RACK GUARD  
INSTALLATION INSTRUCTIONS**



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