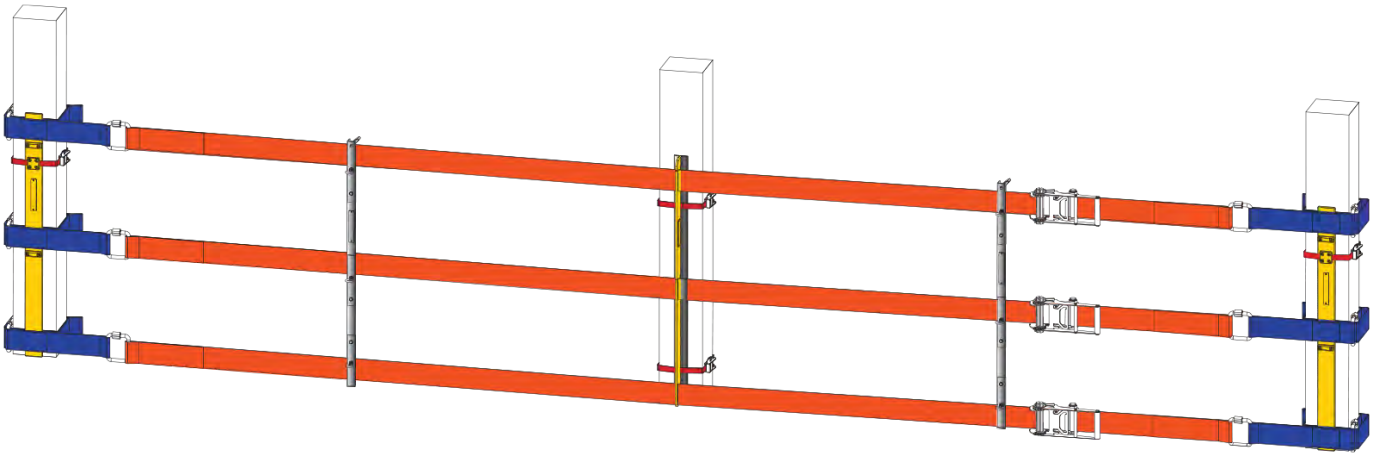
45″ Tall Guardrail - Installation Manual

StrapRail®

Manufactured in Canada by

SUPERCHUTE®



IMPORTANT
REFERENCE DOCUMENT

Toll Free Help Line: 1-800-363-2488

Always use the most recent edition of the manual.
Download the most recent edition at: www.straprail.com

U.S. Patent No. 8,424,852 B2
CAN Patent No. 2,750,728
U.S. Trademark No. 3,830,126
CAN Trademark TMA760,500

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SUPERCHUTE® FACTORY

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IMPORTANT NOTICE:

IT IS THE RESPONSIBILITY OF COMPANIES THAT SELL, RENT OR USE THE STRAPRAIL SYSTEM TO FREELY SUPPLY THE LATEST EDITION OF THIS MANUAL TO THE FOLLOWING PERSONS:

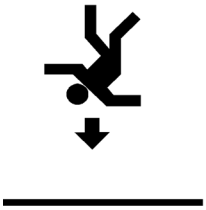
- **THE PLANNERS AND SUPERVISORS OF THE SYSTEM**
- **THE INSTALLERS OF THE SYSTEM**
- **THE USERS OF THE SYSTEM**

Always Use the Most Recent Edition of the Manual:

- Each dated edition of the StrapRail Installation Manual contains important new information.
- The most recent edition is available online at no charge – go to www.straprail.com
- If the edition available online is more recent, then download and use the online edition
- Discard older editions of the StrapRail Installation Manual.
- The information in the most recent edition supersedes information found in previous editions.
- If at any time you are unsure of how to proceed, call Superchute Ltd. toll free 1-800-363-2488.

If you have any questions or comments concerning this manual, please feel free to contact Superchute Ltd.

WARNING



- The installation, dismantle, and use of a StrapRail Guardrail System involves many hazards. For example, the risk of:

  - Workers falling off a building.
  - Falling components or debris striking persons below.

- Planners, Supervisors, Installers, and Users must read, understand, and follow the instructions found in this manual before rigging or adjusting the StrapRail® System.
- Failure to follow the instructions in this manual may result in serious injury or death.
- If you need help, please call the Superchute Factory toll free: 1-800-363-2488
- For extra copies of the manual simply call Superchute, or download the manual at www.superchute.com or www.straprail.com

WARNING

- A person can easily fall to a lower level if unprotected sides, edges, and openings are present.
- A fall from a height of 6 ft. (1.8 meters) is enough to cause serious injury or death.
- Use a personal fall arrest system (for example: a harness, lanyard, and anchor) when working near a floor edge that is not fall protected. Do not use the StrapRail system as a lifeline.

Table of Contents

PRODUCT LIMITATIONS

StrapRail is not designed for use as a lifeline.
Do not use as a lifeline.

Some worksite configurations may not be suitable for StrapRail (such as finished roofs or irregular facades).

Contact the Superchute factory for guidance concerning your particular project: Toll Free 1-800-363-2488

1. Intended Use

StrapRail is a portable tensioned guardrail system, designed for temporary use on construction & industrial projects.

When properly installed, StrapRail provides strong and reliable guardrail fall protection that is far superior to the protection offered by traditional worksite guardrails, such as wooden railings.

In addition to providing worker fall protection, StrapRail can also be overlaid with netting to provide enhanced falling object protection.

The orange strap rails are easily installed, tensioned, and stiffened on existing structural columns, or on steel posts that are bolted to the concrete slab. If used on columns, installation does not require any tools or penetrating fasteners.

Installation requires a minimum of 2 competent workers with prior training in fall protection.

Allow approx. 1 hour for the install or dismantle of a single StrapRail guardrail system.

Note that StrapRail can also be configured as a 94” tall solid netting barrier using extra-tall StrapRail Barrier Posts. Visit the website for more information at www.straprail.com

2. Rail Member Heights

In any railing system, Top Rail, Midrail, and Toeboard members must be maintained at specific heights to comply with guardrail regulations. (Fig. 1)

The 45” tall StrapRail system is designed to maintain 3 straps, each 4” wide, at the following OSHA compliant heights, and to prevent deflection of the Top Rail below 39”.

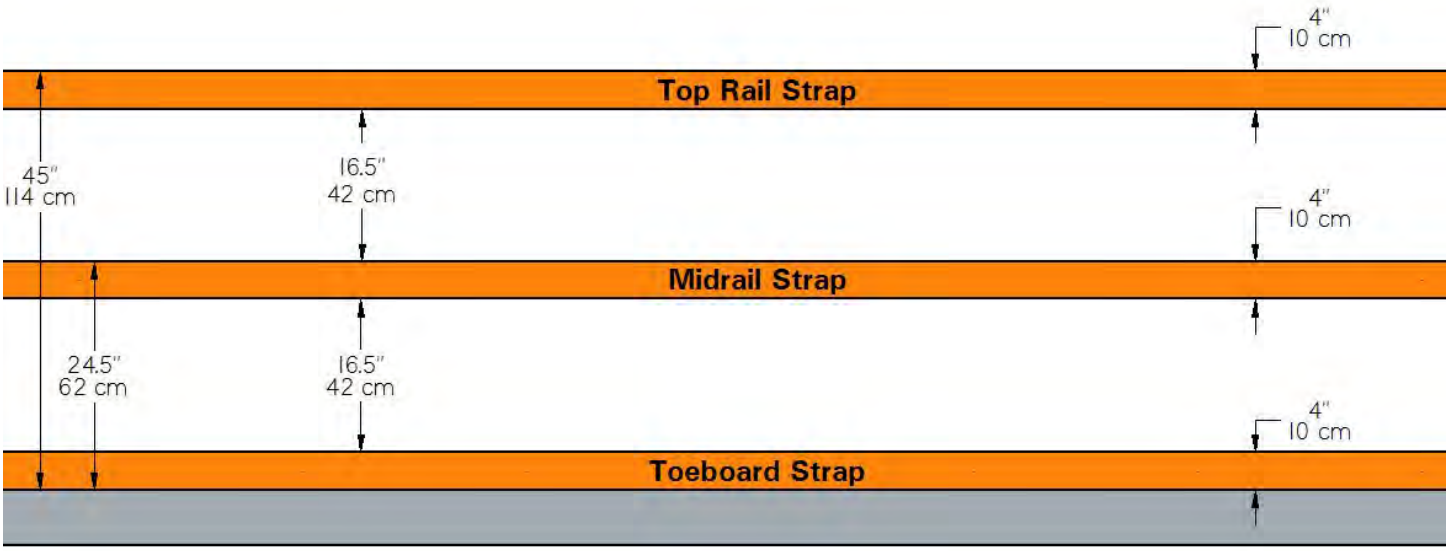


Figure 1

3. The Structure of a StrapRail System

A StrapRail System consists of 4 essential building blocks. (Fig. 2)

These building blocks are always installed in the sequence shown in the table below.

Sequence	Building Blocks	Criteria
A	Anchor Posts	2 Required - Not more than 150 ft apart
B	Guide Posts	Every 50 ft or less, securely fastened to the structure
C	Orange Straps	3 Required - Forming the Top Rail, Midrail, & Toeboard
D	Clamp Posts	To maintain 10’ spacing between any type of post

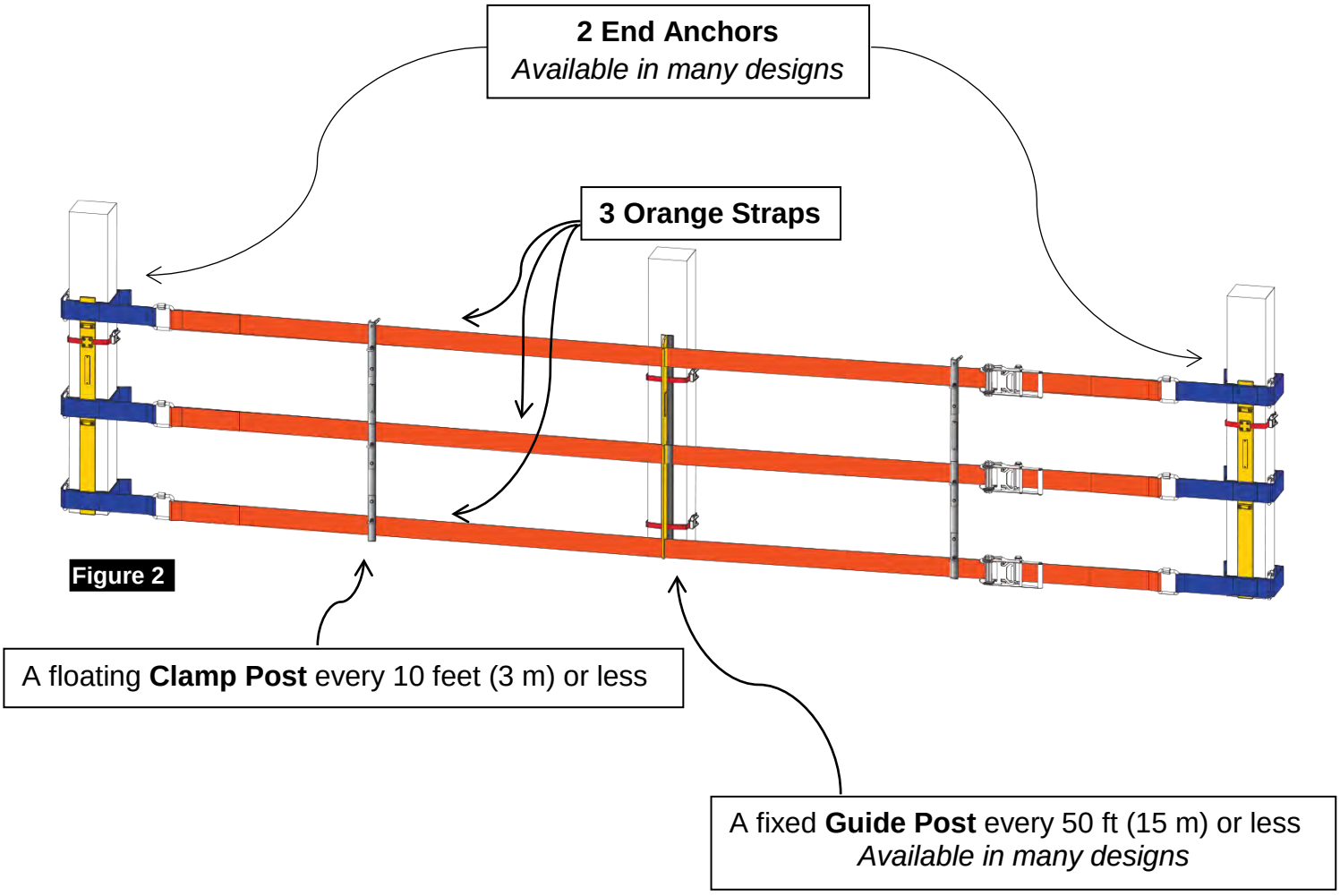


Figure 2

4. Understanding the StrapRail Components

Each building block contains a selection of components. This variety allows the system to be configured in many possible ways.

Planning a StrapRail system involves selecting the most suitable components for your project.

Contact the manufacturer (Toll Free 1-800-363-2488) for assistance in selecting components.

This chapter will help you identify and understand the function of individual components.

Sequence	Building Blocks	Approved Components
A	Anchor Posts	• Noose Post Kit • Corner Post • Inline Post • Wall Post
B	Guide Posts	• Basic Column Post • Outboard Column Post • Square Corner Guard • Round Corner Guard • Midway Post
C	Orange Straps	• Rail Strap (many lengths) • Ratchet Strap
D	Clamp Posts	• Anti-Deflection Post • Anti-Deflection Post with Foot
E	Optional Netting	• Rolls of Netting • Steel clips • Cable Ties • Cable Tie Cutter

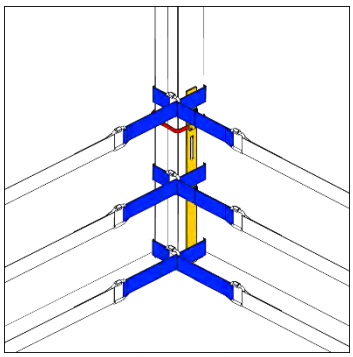
To avoid compromising the safety of the guardrail,
do not introduce unauthorized components into a StrapRail system.

A. The Anchor Posts

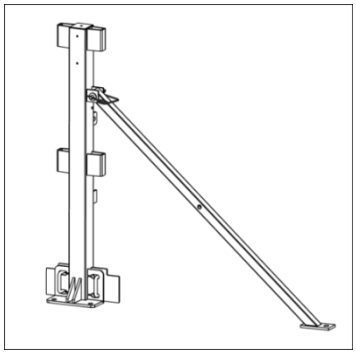
A StrapRail system requires substantial anchors at each end of the guardrail span. (Fig.3)

- Do not exceed 150 ft (45 m) between 2 shared anchor posts.
- A set of 3 orange straps will be used to span the gap between the 2 shared anchor points.
- The design of the Anchor allows it to serve 2 separate guardrail systems
  (Except the dead-end Wall Post which can only serve 1 end of a system)

The following **Anchor Posts** are the only approved end anchors for the StrapRail System:


Noose Post Kit


Corner Post


Inline Post

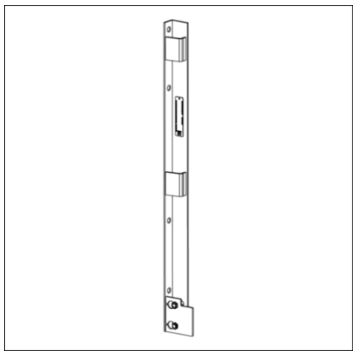

Wall Post

Figure 3

Note:

- The anchor posts will set the orange straps at the correct height for a guardrail.
- All anchor posts must be secured to structurally adequate elements of the building.
- Ask a structural engineer to verify the adequacy of the supporting structure before installing anchor posts. The tensioned straps can exert up to 7500 lb of lateral load on the anchor.

Noose Post Kit for Columns

An improved, easy-to-install webbing anchor kit (Fig 4).

For terminating a system on an existing structural column.

Accepts up to 2 systems at any angle (Fig. 5 & 6)

Connect or disconnect orange straps without affecting adjacent installations.

No tools required - No drilling required!

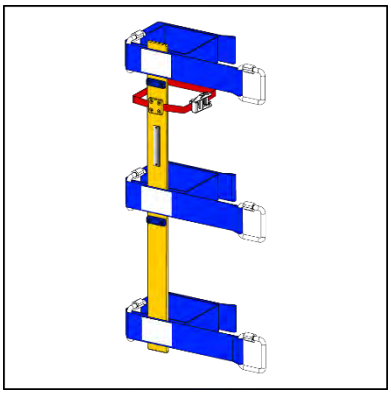
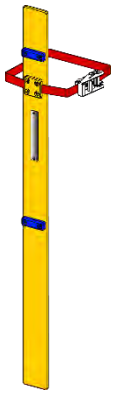


Figure 4

The Noose Post Kit consists of:

- 1 Noose Post
- 3 Noose Belts

Noose Post



- Lightweight yellow post for setting the belt heights
- In yellow plastic with 1 red cinch strap
- Lash the post to an existing column

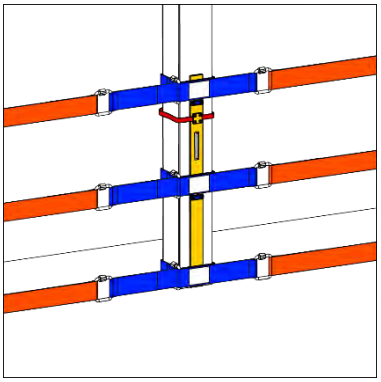
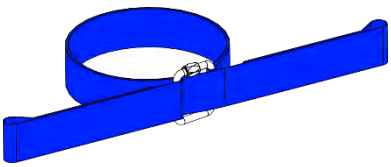


Figure 5

Noose Belt

- Sewn blue polyester choker with twin legs
- Standard length: 6’ per leg (x 2 legs) to suit column sizes up to 12” x 12” square or 12” diameter.
- Other lengths are available to suit larger columns
- Includes 1 quick link
- A single belt will serve 1 or 2 orange rail straps
- Use either leg independently.



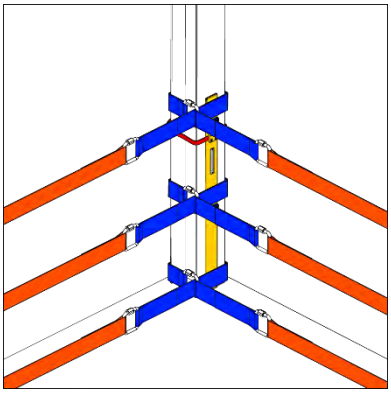
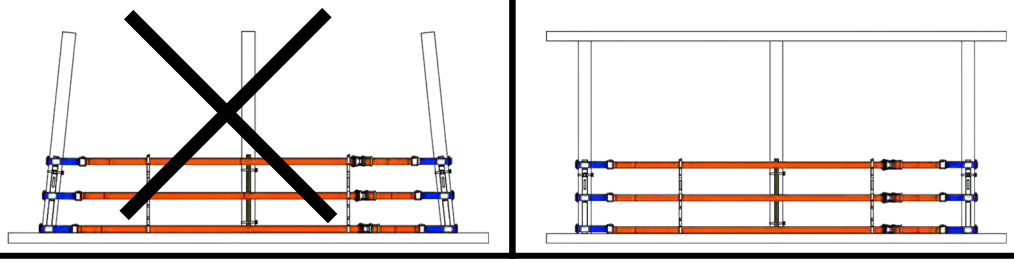


Figure 6

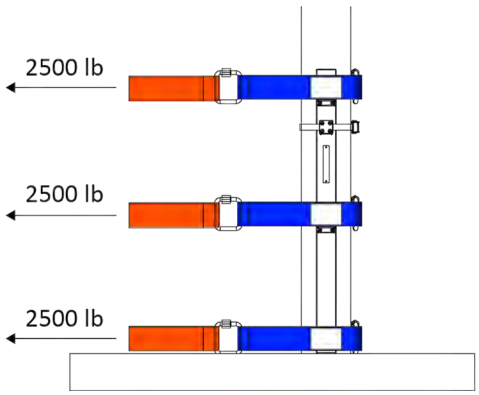
CAUTION

- The highly tensioned orange straps will bend and damage unsupported structural columns.
- Any column that will be used as an end anchor must have bracing, such as overhead structural beams that connect to other columns.
- Install webbing anchors on adequately braced steel or concrete columns only.



CAUTION

- Each tensioned leg of the noose belt will apply up to 2500 lb of lateral force to the column. A set of 3 tensioned straps can exert a combined lateral force on the column of up to 7500 lb.
- The tension exerted by the orange straps will bow and damage structural columns of insufficient girth and strength.
- The adequacy of the selected columns must be verified by your structural engineer before you install the StrapRail system.



Steel Anchor Posts for Concrete Slabs

Use these posts to anchor the orange straps to concrete structures. Do not exceed 150 ft between any 2 anchor posts. The anchor posts will set the correct height for the orange straps.

The adequacy of the supporting concrete structure must be verified by a structural engineer. The tensioned straps can exert up to 7500 lb of lateral load on the anchor.

Choice of 3 posts, in heavy duty galvanized steel:

i. Corner Post (Fig. 7)

For terminating 2 strap systems at a 90° angle.

Requires 2 brace legs (supplied).

Drill and bolt to a 6” thick solid concrete floor slab.

5 approved anchor bolts required.

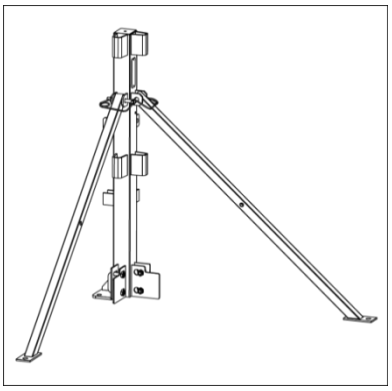


Figure 7

ii. Inline Post (Fig. 8)

For terminating 2 strap systems at a 180° angle.

Perfect for long, straight runs. Build a strap barrier of infinite length, by placing an Inline Post every 150 feet (or less).

Requires 1 brace leg (supplied).

Drill and bolt to a 6” thick solid concrete floor slab.

5 approved anchor bolts required.

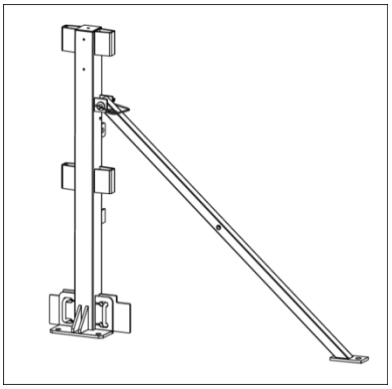


Figure 8

iii. Wall Post (Fig. 9)

For terminating a single strap system against a concrete wall.

Slim & discreet design (no brace leg required).

Drill and bolt to a 6” thick solid concrete wall slab.

4 approved anchor bolts required.

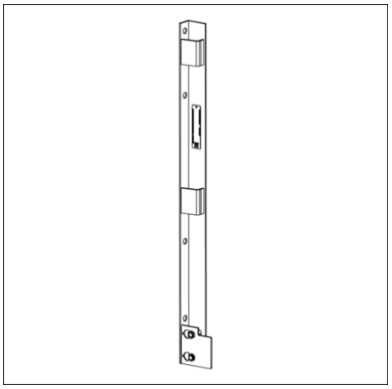


Figure 9

Note: There are several factory approved anchor bolts. The most commonly used bolt is the HILTI KH-EZ 5/8” x 5.5” (item #418080). Ask Superchute for assistance in selecting the best bolt for your project. Superchute can also supply the bolts.

B. The Guide Posts

Guide Posts will set the path for the 3 orange rail straps, while limiting their outboard and downward movement, and maintaining them at the required heights. Always aim to install the guide posts in the straightest line possible to avoid strap friction and ensure adequate strap tension throughout the guardrail.

Any StrapRail system requires a fixed post of some type every 50 feet or less. A fixed post is completely immobile and tightly secured to the building structure. Correctly installed Anchor Posts and Guide Posts perform the function of fixed posts.

The following are the only approved Guide Posts for the StrapRail System. The easiest ones to install are those that are simply cinched to existing columns using 1" red cinch straps.

Choice of 5 guide posts:

A. Cinched Guide Posts (Install on Structural Columns)

i. Basic Column Post (Fig. 10)

For use on existing structural columns.

- Can be installed on round or square columns
- Should be installed as often as possible
- Locking feature allows for the trapping of orange straps, by means of 100 lb capacity zip ties or padlocks.

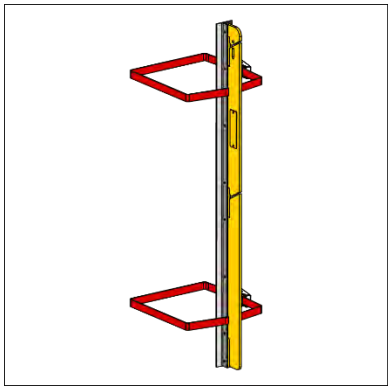


Figure 10

ii. Outboard Column Post (Fig. 11)

A super slim post for situations where the straps will be installed along the outboard face of the columns, while still remaining inboard of the slab edge. Ask Superchute for guidance on outboard column face installations.

- Keeps the orange rail straps tight against the column
- Allows maximum access to the working surface
- Perfect for slab troweling projects where close access to the slab edge is highly desirable
- Maximum retention of the orange rail straps is ensured by means of 4 red captive cinch straps
- Should be installed as often as possible

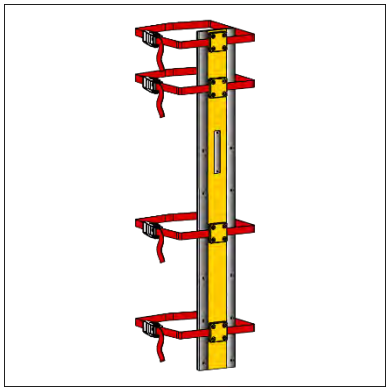


Figure 11

iii. Square Corner Guard (Fig. 12)

Essential for turning a corner on a square column.

- For use on existing structural columns
- Low-friction gliding surfaces maintain strap tension and prevent chafe
- To ensure adequate tension in the strap system do not use more than 1 corner guard per system.

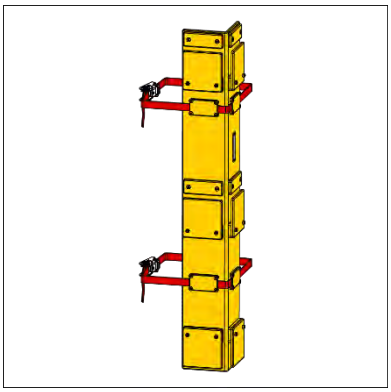


Figure 12

iv. Round Corner Guard (Fig. 13)

Essential for redirecting the straps around a circular column.

- For use on existing structural columns
- Low-friction gliding surfaces maintain strap tension and prevent chafe
- To ensure adequate tension in the strap system do not use more than 1 corner guard per system.

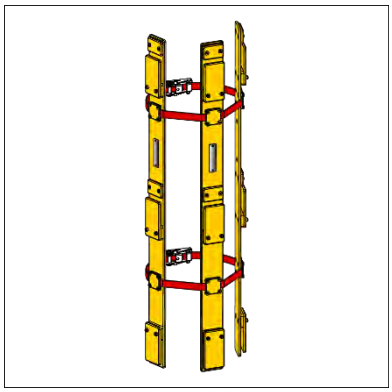


Figure 13

B. Bolt Down Guide Post

v. Midway Post (Fig. 14)

For situations where strap-on guide posts cannot be used (example: lack of existing columns).

- Bolt to concrete slab, minimum 6” thick.
- Prevents outward and downward deflection of the guardrail system
- 4 approved anchor bolts required.
- **There are several factory approved anchor bolts. The most commonly used bolt is the HILTI KH-EZ 5/8” x 5.5” (item #418080). Ask Superchute for assistance in selecting the best bolt for your project. Superchute can also supply the bolts.**

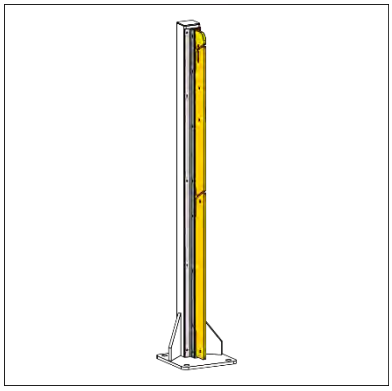


Figure 14

C. The Orange Straps

All StrapRail webbing is woven in Canada using UV resistant yarn for a projected life of at least 10 years in direct sunlight.

i. Rail Strap (Fig. 15)

The most commonly used strap length is 100 ft. Longer and shorter straps are available to suit the specific requirement.

The maximum strap length is 150 ft.

The longer the strap, the harder it is to handle during the installation. Installers will want to select a strap that is appropriate for the span, with minimal excess strap to handle.

The strap length is marked on a sewn badge located on the looped end of every strap. Do not use straps that are longer than 150 feet.

Straps are available in the following lengths:

- 25’
- 50’
- 75’
- 100’
- 125’
- 150’

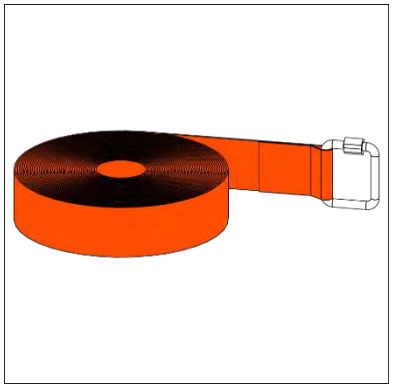


Figure 15

ii. Ratchet Strap (Fig. 16)

Each long rail strap member is tensioned using a powerful, lever action 4” ratchet, capable of exerting up to 2500 lb of tension. For this reason a structural engineer must be notified ahead of time that a tensioned system will be applied to the building structure.

As every guardrail system consists of 3 strap members, the end anchors could be subjected to 7500 lb of lateral force.

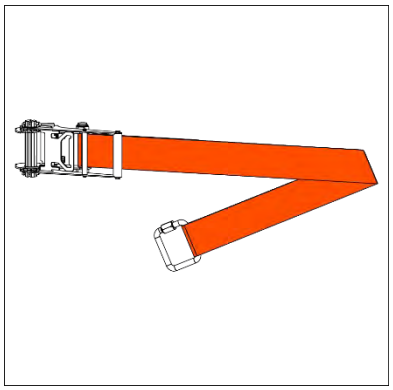


Figure 16

Note! If any welding work is to be conducted near installed straps, they must be protected with welding blankets.

D. The Clamp Posts

Clamp posts are connected to the 3 orange straps every 10 ft (3 m) to create a semi-rigid framework of straps and posts. A typical StrapRail system will contain many clamp posts.

The clamp posts perform the critical function of stiffening the barrier and limiting downward and outward deflection of the straps if a person were to fall on the guardrail. To be effective the clamp posts must rest on the floor surface, or be located immediately above the supporting deck (in anticipation of the pending concrete pour). They cannot be located beyond the edge of the deck.

Clamp posts are also commonly referred to as FLOATING posts since they simply rest on or above the floor surface, and are not secured to the building deck or columns. Other post types (Anchor Posts and Guide Posts) are FIXED posts in that they are securely fixed to the building structure.

Any StrapRail configuration requires the presence of a post (anchor post, guide post, or clamp post) every 10 ft. Use the clamp posts to ensure the presence of a post at 10 ft intervals throughout the system.

i. Anti-Deflection Post (Fig. 17)

Original style for inboard use

Must be positioned over a solid surface.

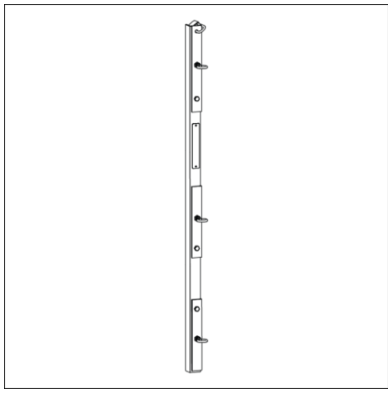


Figure 17

ii. Anti-Deflection Post with Foot (Fig. 18)

For edge-of-slab installations.

The 6” foot provides generous engagement on the slab.

Must be positioned over a solid surface.

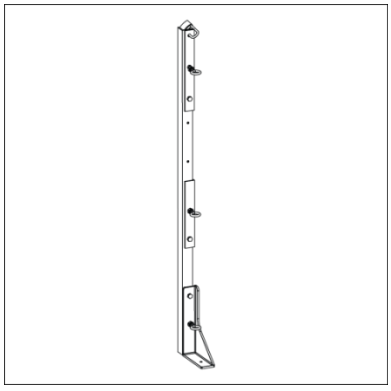


Figure 18

E. Optional Netting

Your installed StrapRail guardrail can be fitted with netting for enhanced falling object protection.

i. Debris Netting Rolls (Fig. 19)

Prevents tools, materials & debris from falling through or blowing through the guardrail.

- Heavy duty polyethylene construction
- Orange net with visible yellow stripes
- Reinforced buttonholes on upper and lower edges
- Netting is available in rolls of 100’ and 200’ lengths
- 39” height to suit the guardrail
- Connect the netting to the webbing straps with StrapRail Steel Clips or zip ties.

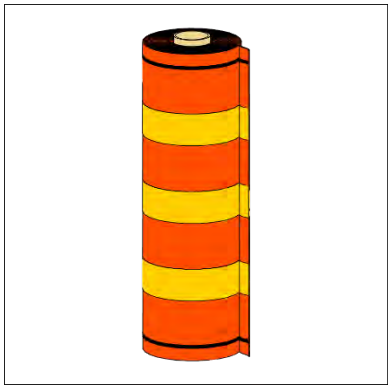


Figure 19

ii. Steel Clips (Fig. 20)

Install 1 Steel Clip approx. every 2' (0.60 m) to both the Top Rail Strap and Toeboard Strap

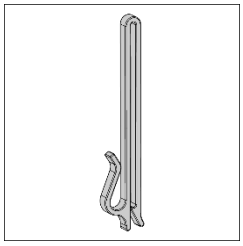


Figure 20

iii. Cable Ties (Fig. 21)

Install 1 cable tie approx. every 5' (1.5 m) to both the Top Rail Strap and Toeboard Strap.

- 120 lb tensile
- UV treated

Figure 21

iv. Cable Tie Cutter (Fig. 22)

Pliers style tool

For safe and quick removal of cable ties.

Eliminates any risk of damage to the straps.

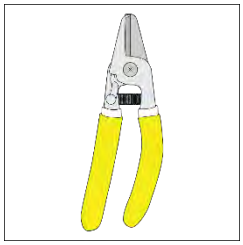


Figure 22

5. Before you begin the Installation

1. Before you proceed with the installation, a structural engineer must approve the adequacy of the supporting structure.

2. Ask the Superchute Factory to prepare a site specific Guardrail Plan for your project, so as to help determine the optimal layout and a materials list of the equipment required. There is no charge for this service. A Guardrail Plan is essential for installers who are new to using the product. Since StrapRail can be configured in so many ways, even experienced installers may wish to request a Guardrail Plan for their projects.

3. StrapRail may only be installed by personnel who have been trained and authorized as competent installers by Superchute's Training Staff. A written dispensation can be obtained in certain cases. Contact the factory to confirm the installer's status, or for any other assistance: 1-800-363-2488.

4. Failure to install the guardrail system properly can result in serious injury or death.

5. Note that each tensioned orange strap will exert a horizontal force of up to 2500 lb on the end point anchor. Since there are 3 straps per system, this can represent a load of 7500 lb on the anchorage, whether it is a StrapRail Steel Post or an existing structural column.

6. Install the straps in the straightest possible line to avoid any strap tension loss due to friction. Turning a corner will result in strap tension loss. Do not allow more than 1 corner turn per system. Do not weave the straps between columns. Contact the Superchute factory for guidance.

7. Determine where you will start and finish the system.

8. Decide which type of anchor post you wish to use at either end of the system:

- If you plan to anchor the straps to existing structural columns, you will need Noose Post Kits (yellow noose posts with blue noose belts).

- If existing columns are not available, then consider installing Steel Bolt-Down Anchor Posts (Inline Post or Corner Post). Drill and bolt the posts to a properly cured concrete floor slab (6" thick minimum).

- You can also start or end the system on a solid concrete slab wall using the optional Steel Wall Post. Drill and bolt the Wall Post to a properly cured concrete slab wall (6" thick minimum).

6. Maximum Distance Rules

150 ft Rule: **Do not exceed 150 ft between the Anchor Posts.**

Every StrapRail system is anchored to a pair of posts that must not be set more than 150 ft apart. Beyond 150 ft the ratchets will be incapable of applying sufficient tension to the orange straps thus compromising the safety of the system. (Fig. 23)

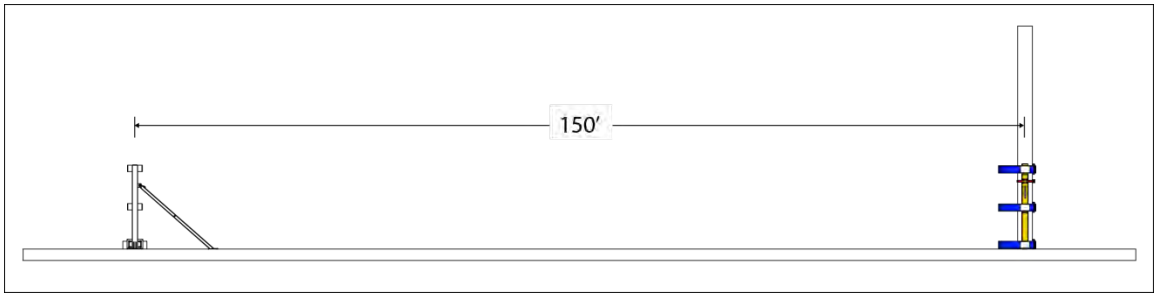


Figure 23

50 ft Rule: **Do not exceed 50 ft between fixed posts.**

A fixed post is an Anchor Post or Guide Post that has been firmly secured to the building structure (either cinched to a column or bolted to the slab). A fixed post spacing beyond 50 ft will result in too much strap deflection should a worker fall against the straps. For this reason the distance between fixed posts must be no more than 50 ft. A spacing less than 50 ft will help to further stiffen the system so install additional guide posts when existing columns are available. (Fig. 24)

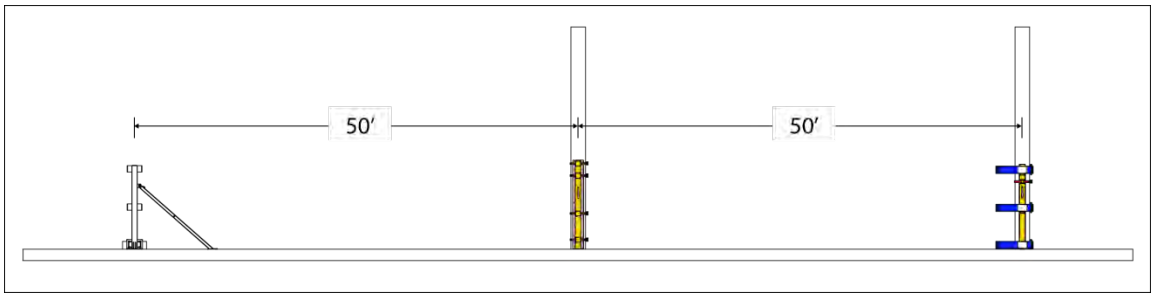


Figure 24

10 ft Rule: **A StrapRail post of some type is required every 10 ft**.

To prevent strap deflection the spacing between any 2 StrapRail posts must not exceed 10 ft. Use Clamp Posts to ensure the presence of a post every 10 ft throughout the system. (Fig. 25)

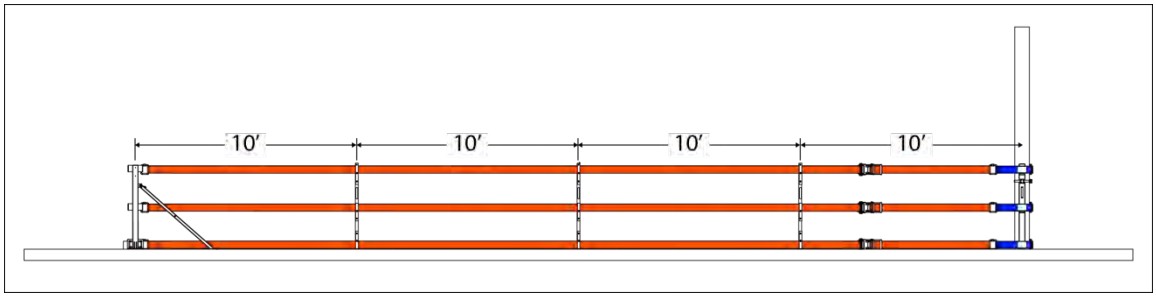


Figure 25

7. Installation Overview

A. Install the Anchor Posts (Fig. 26)

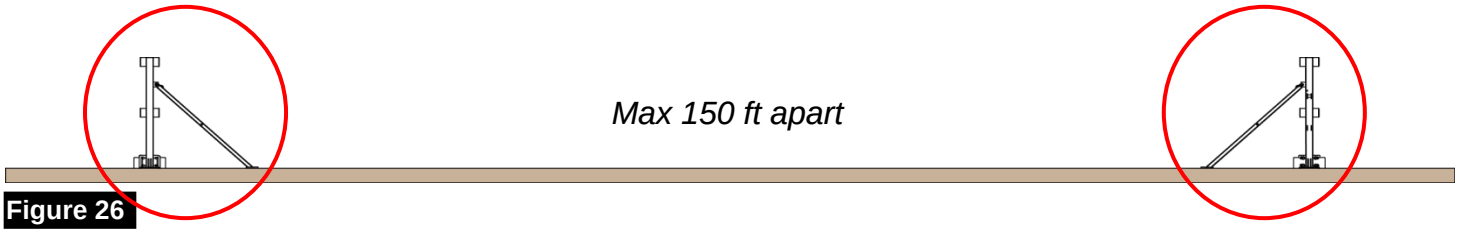


Figure 26

B. Install the Guide Posts (Fig. 27)

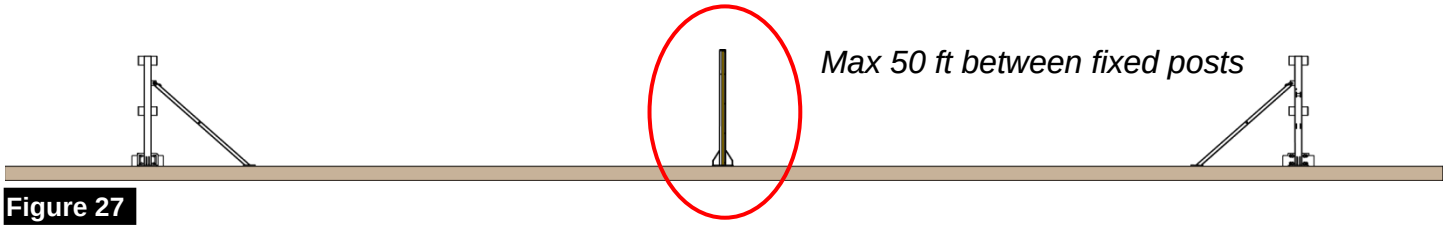


Figure 27

C. Install & Tension the 3 Straps to Maximum Exertion (Fig. 28)

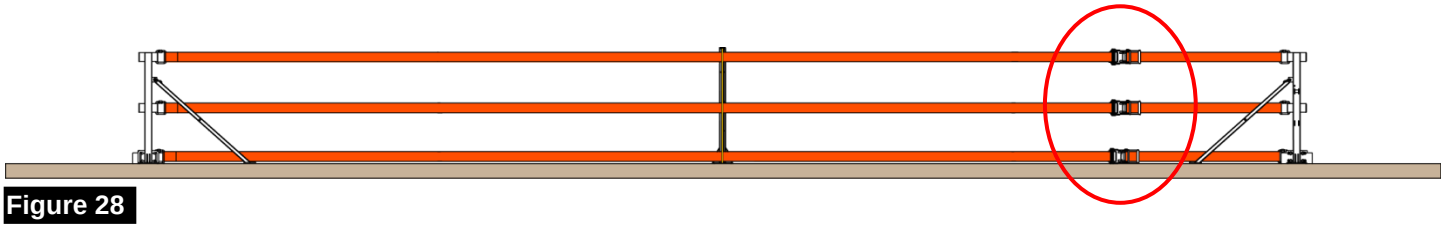


Figure 28

D. Install the Clamp Posts on 10 ft Spacing (Fig. 29)

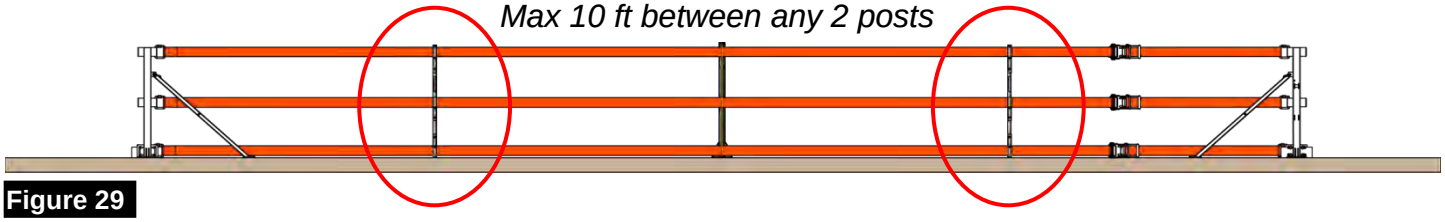


Figure 29

8. Acceptable Installation Layouts

45” Tall Guardrail with 3 Straps (Fig. 30)

Consists of a **Top Rail Strap**, a **Midrail Strap**, and a **Toeboard Strap**.

The Toeboard Strap provides a minimal degree of falling object protection.

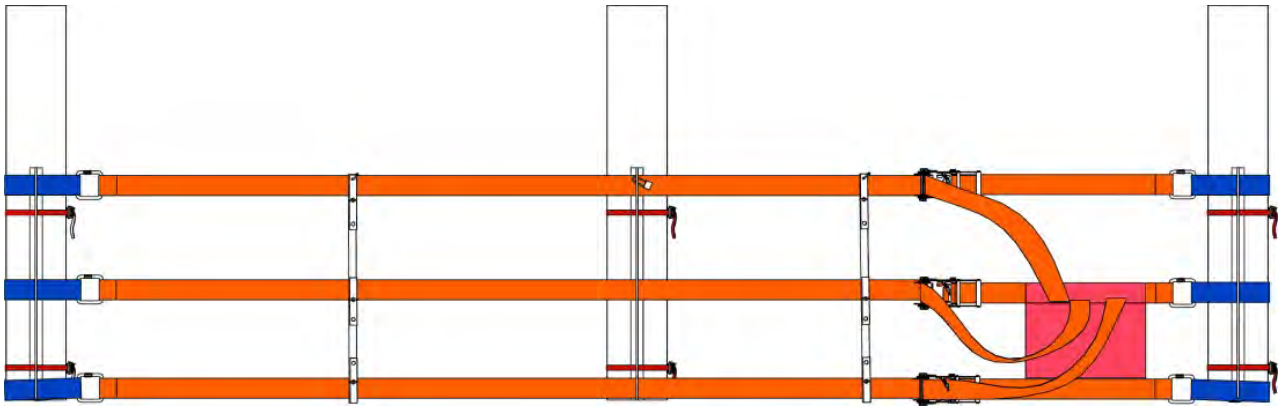


Figure 30

45” Tall Guardrail with 3 Straps + Debris Netting (Fig. 31)

If the job requires optimized falling object protection, then this could be the layout to install. First install the 3 rail straps. Then create a solid barrier by overlaying StrapRail Netting. Secure the netting to the strap barrier with stainless netting clips and nylon zip ties.

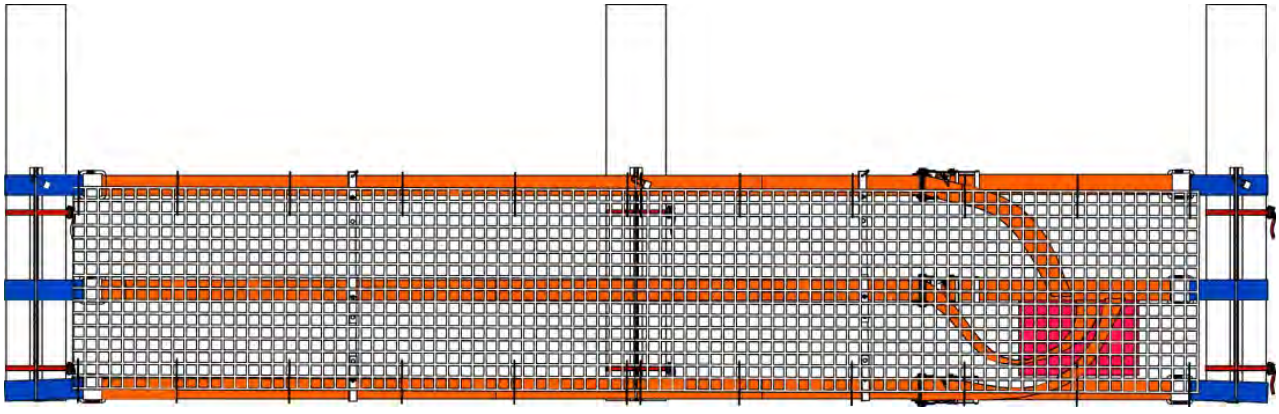


Figure 31

9. Removing the Toe Strap to meet a Site Specific Condition

A full set of 3 orange rail straps is required for a complete and optimally stiffened system and to meet regulatory code requirements. (Fig. 32)

However there may be specific moments during a project where the temporary removal of the toeboard strap may be required to perform the work at hand, for example:

- The pouring of concrete
- The troweling of concrete

Note that without the toeboard strap there is no falling object protection, so the risk of objects falling over the edge is greatly heightened.

The StrapRail system must not be left without the toeboard strap for an extended period of time.

Unless alternate toeboard protection exists, the toeboard strap is a required component in a complete system.

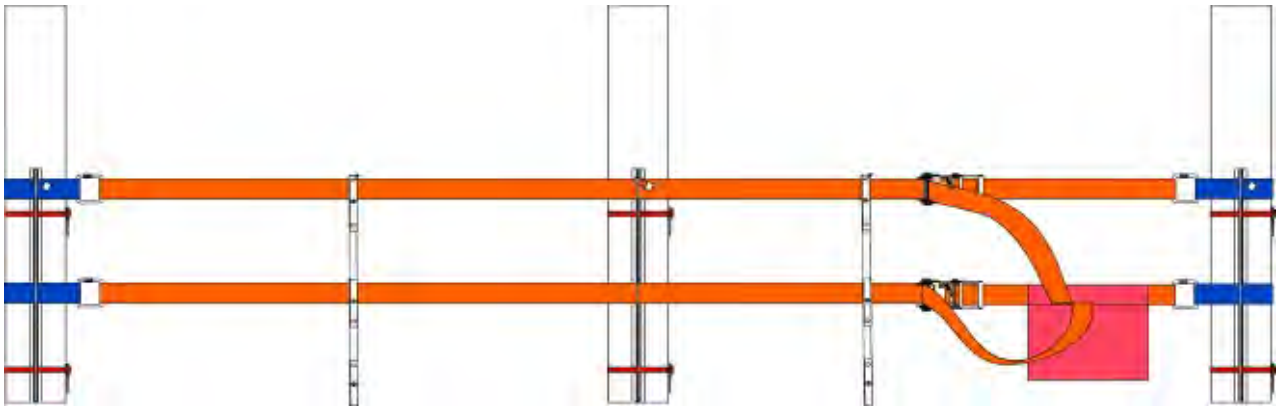


Figure 32

10. Unacceptable Installation Layouts

Top Rail Only (Fig. 33)

The Midrail and Toeboard straps are missing

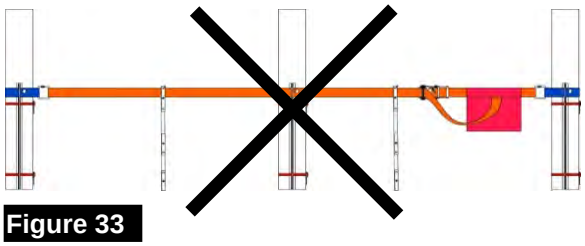


Figure 33

Mid Rail Only (Fig. 34)

The Top Rail and Toeboard straps are missing

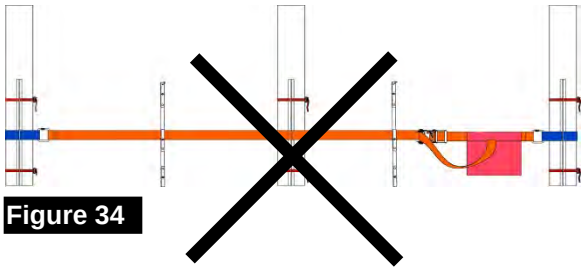


Figure 34

Toeboard Only (Fig. 35)

The Top Rail and Midrail straps are missing

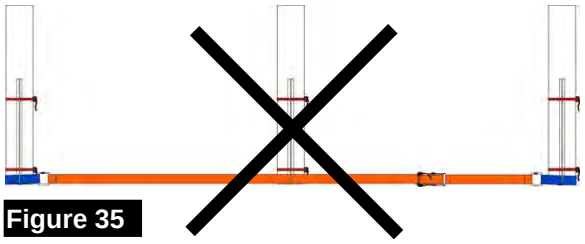


Figure 35

Midrail & Toeboard Only (Fig. 36)

The Top Rail strap is missing

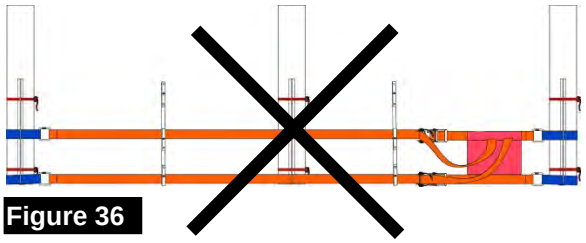


Figure 36

Top Rail, Toeboard & Netting Only (Fig. 37)

The Midrail strap is missing

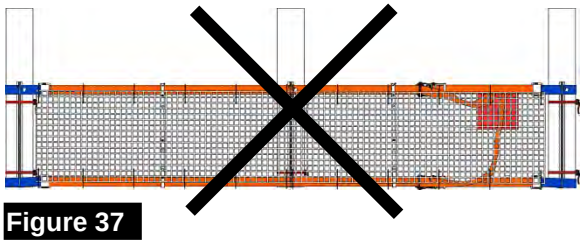


Figure 37

11. StrapRail Installation

This chapter will take you through the key steps for the installation of a StrapRail system:

1. Install the Anchor Posts
2. Install the Guide Posts
3. Install the Rail Strap
4. Install the Ratchet Strap
5. Tension the orange straps to maximum exertion
6. Install the clamp posts on 10’ spacing

1. Install the Anchor Posts

A. How to install a Noose Post Kit

For use on approved structural columns.

i) Place the Noose Post against the column (Fig. 38).

ii) Wrap the red strap around the column, pass the strap through the 1” ratchet, and crank the ratchet until the post is secure (Fig. 39).

iii) Next, prepare the Top Rail webbing anchor.

iv) Wrap the Blue Noose Belt around the column, and pass both ends of the strap through the quick link (Fig. 40).

v) The blue belt must rest on the protruding plastic tab, to ensure the railing member is set at the correct height.

vi) Repeat steps iv) & v) to prepare the webbing anchor for the Top Rail, Midrail and Toeboard straps.

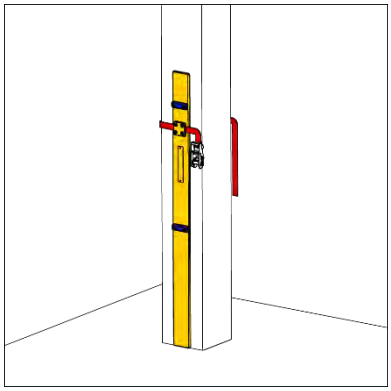


Figure 38

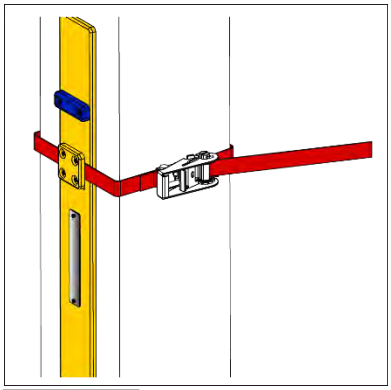


Figure 39

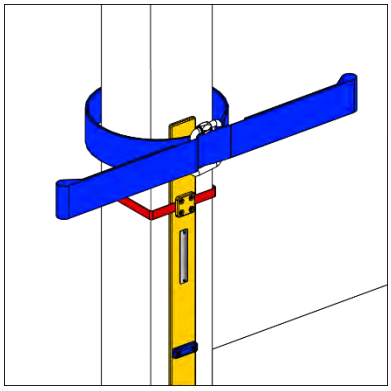


Figure 40

Top View Anchor Post Configuration (Fig. 41)

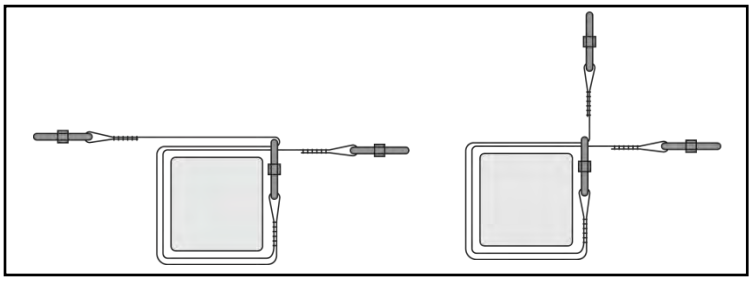


Figure 41

B. How to Install a Steel Anchor Post

Ensure that the concrete slab is at least 6” thick and suitable for drilling. The Corner Post and Inline Post each require 5 bolts, while the Wall Post requires 4 bolts. (Figs. 42-46)

i) Determine which model of anchor bolt you will use to secure the post. There are several factory approved anchor bolts. The most commonly used bolt is the HILTI KH-EZ 5/8” x 5.5” (item #418080). Ask Superchute for guidance in selecting the best bolt for your project. Superchute can also supply the bolts.

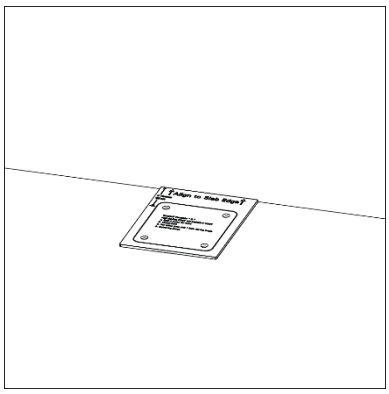


Figure 42

ii) Consult with the site engineer beforehand to identify any rebar or tensioning cables located within the concrete slab that might hinder, restrict or prohibit any drilling.

iii) Place the post in the desired location at least 4” from edge. A template is provided for the deck mounted posts to assist in locating the post 4” from the slab edge. Corner and inline posts each have their own template. With a thick marker, mark off the location of the holes.

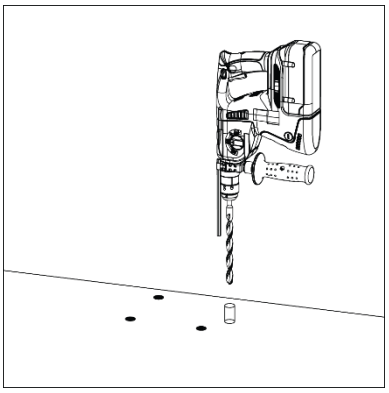


Figure 43

iv) Move the template so as to expose the markings.

v) Use a HILTI Hammer Drill or similar to drill the holes to the required diameter and depth.

vi) Use a vacuum cleaner to suck the concrete dust out of the drilled holes. An air pump is the least preferred way to evacuate the dust, because it makes the dust airborne and inhalable, which is a health hazard.

vii) Place the post over the drilled holes and secure using the anchor bolts.

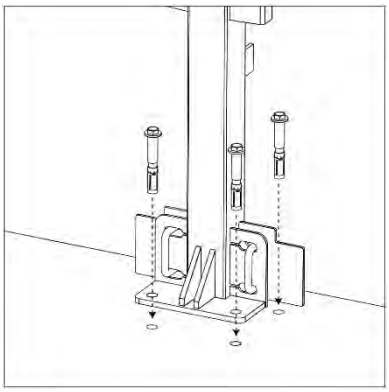


Figure 44

viii) Install the braces, drill brace holes in concrete. Anchor the braces to slab.

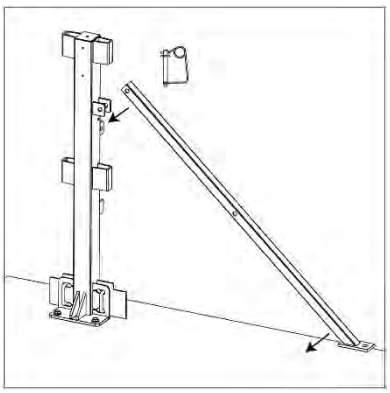


Figure 45

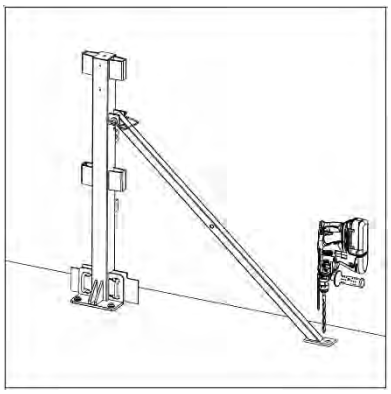


Figure 46

2. Install the Guide Posts

A. How to Install the Basic Column Post

For use on structural columns

i) Place the guide post against the column (Fig. 47)

ii) Secure the post to the column using the 2 red cinch straps. If installing the system outboard leave some slack initially so as to be able to rotate the post around the column to the outboard side. (Fig. 48)

iii) Once the guide post is well positioned crank both 1” ratchets until the red straps are tight, and the post does not move. (Fig. 49)

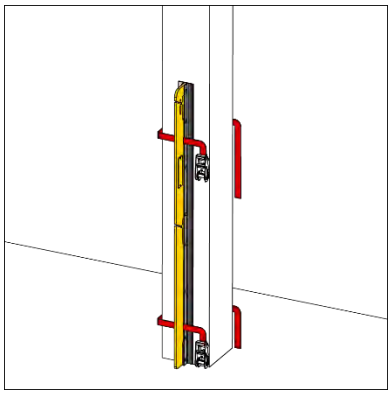


Figure 47

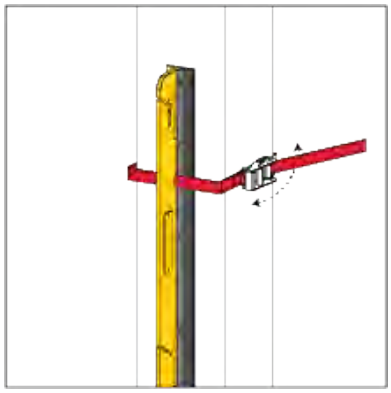


Figure 48

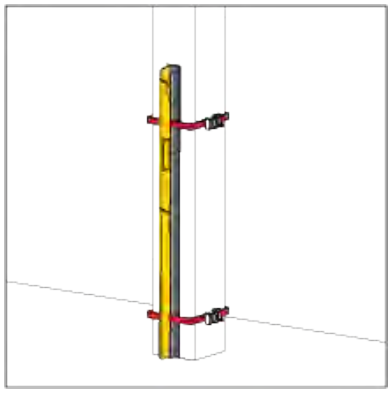


Figure 49

B. How to Install the Outboard Column Post (Figs. 50-52)

For use on structural columns

i) Place the guide post against the column

ii) To begin, secure the post to the column using a single red cinch strap. Use the strap that is located approximately half way up the post (below the Midrail slot).

iii) Once the Orange Railing Straps are installed, the remaining 3 red straps are used to cinch the post tightly to the column.

iv) Ensure all 4 red cinch straps are used to tightly secure the post to the column.

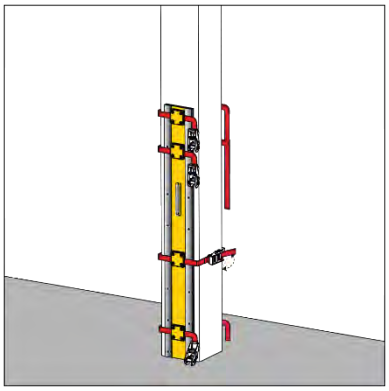


Figure 50

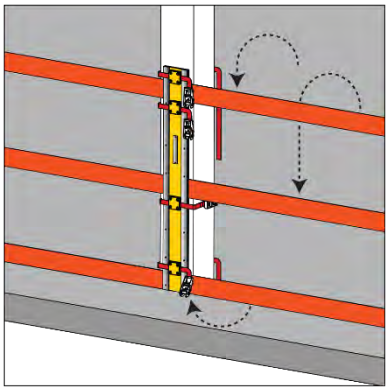


Figure 51

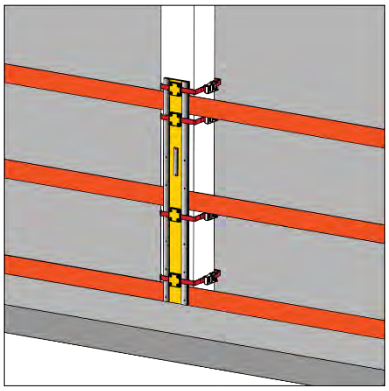


Figure 52

C. How to Install a Corner Guard Post

For use on approved structural columns. Load will be applied against the column when the orange straps are tensioned.

2 models available:

- Square Corner Guard (Fig. 53)
- Round Corner Guard (Fig. 54)

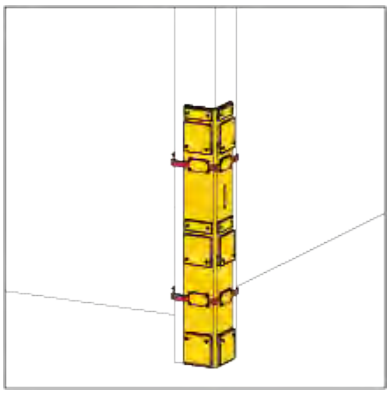


Figure 53

i) Place the post against the column

ii) Secure the post to the column using the 2 red cinch straps. If an outboard placement is required, leave some slack in the cinch straps to allow for rotation of the post around the column.

iii) Once the Corner Guard is in the desired position, crank both ratchets until the red straps are tight, and the post cannot move.

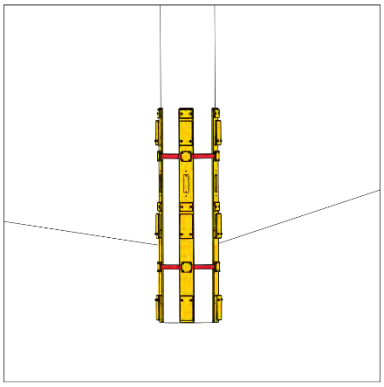


Figure 54

⚠ WARNING

- Running the orange straps around a corner (even a guarded corner) will create friction and make it more difficult to achieve adequate strap tension.
- An inadequately tensioned system is a safety hazard.
- Do not use more than 1 corner guard post per StrapRail system. If more than 1 corner turn is required, terminate the system and restart with a new system.

D. How to Install a Midway Post (Fig. 55)

Ensure that the concrete slab is at least 6” thick and suitable for drilling.

i) The Midway Post requires 4 anchor bolts. Determine which model of anchor bolt you will use to secure the post. **There are several factory approved anchor bolts. The most commonly used bolt is the HILTI KH-EZ 5/8” x 5.5” (item #418080). Ask Superchute for guidance in selecting the best bolt for your project. Superchute can also supply the bolts.**

ii) Consult with the site engineer beforehand to identify any rebar or tensioning cables located within the concrete slab that might hinder, restrict, or prohibit any drilling.

iii) Place the post in the desired location. A template is provided to assist in locating the post 4” from the slab edge. Each post has its own setup template. With a thick marker, mark off the location of the holes.

iv) Remove the template to expose the markings. Use a HILTI Hammer Drill or similar, to drill the holes to the required diameter and depth.

v) Use a vacuum cleaner to suck the concrete dust out of the drilled holes. An air pump is the least preferred way to evacuate the dust, because it makes the dust airborne and inhalable, which is a health hazard.

vi) Place the post over the drilled holes and secure using the anchor bolts.

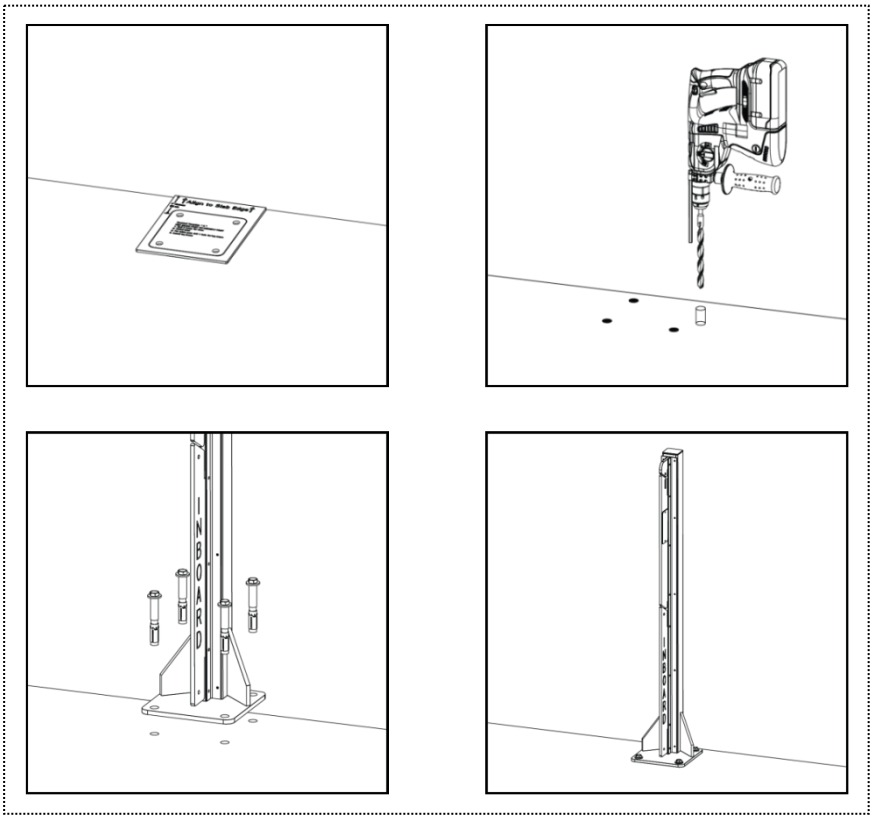


Figure 55

3. Install the Rail Strap

- For the purposes of this manual Noose Belt Anchors are shown in the following diagrams.

- Begin with the Top Rail Strap. Connect the Orange Rail Strap and the Blue Noose Belt Strap using the 4” Quick Link. (Fig. 56)

- Close the Quick Link by rotating the nut. Fully close the screw gate of the quick link before tensioning the strap. Failure to close the screw gate will damage the quick link. (Fig. 57)

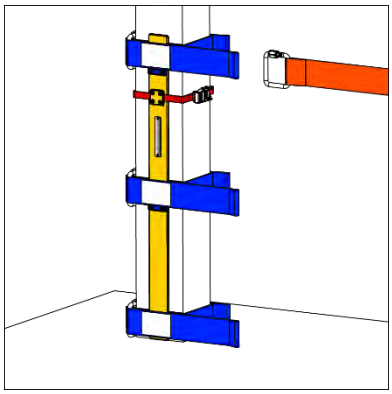


Figure 56

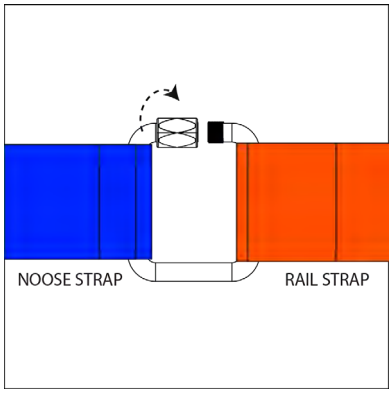


Figure 57

4. Install the Ratchet Strap

- Begin with the Top Rail Strap. Connect the Orange Ratchet Strap and the Blue Noose Belt Strap using the 4” Quick Link. (Fig. 58)

- Close the Quick Link by rotating the nut. Fully close the screw gate of the quick link before tensioning the strap. Failure to close the screw gate will damage the quick link. (Fig. 59)

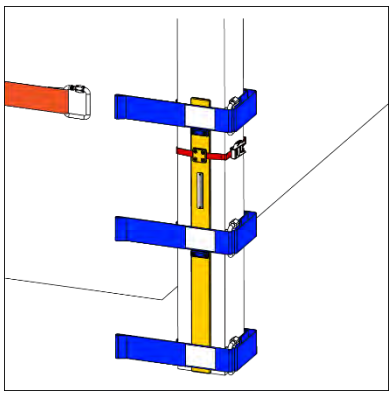


Figure 59

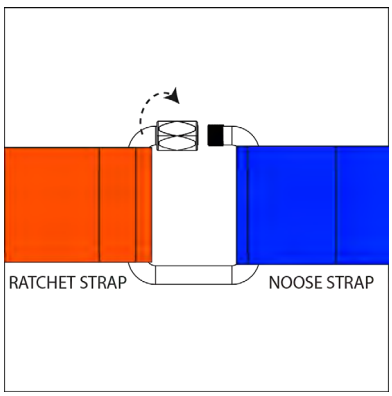


Figure 58

5. Tension the System to Maximum Exertion (Figs. 60-63)

i) Begin with the **Top Rail Strap.**

ii) Pull the strap 180° through the ratchet and remove all slack before you begin to action the ratchet. One worker should pull the loose end while another worker operates the ratchet. If you do not remove the slack before ratcheting, the ratchet drum will quickly fill with the wound strap and prevent adequate tension from being achieved.

iii) Tension the strap to maximum exertion, as tightly as you can, until the ratchet will not allow further tensioning.

iv) A single fully tensioned ratchet will apply up to 2,500 lb of force to each strap.

v) Therefore 3 ratchet straps will exert up to 7,500 lb of tension on each anchorage.

vi) The tensioned orange strap should be able to glide freely through the slots of the guide posts.

vii) Roll up the excess strap and lash it to the strap member using the supplied Velcro band, to avoid a trip hazard.

viii) Tension is easily evaluated by the installer given the following visual and tactile cues: If there is insufficient tension the straps will be slack, lack stiffness, and the heavy 3.5 kg ratchets (8 lb) will sag noticeably.

ix) Repeat Steps 3, 4, and 5 for the Midrail Strap and Toeboard Strap.

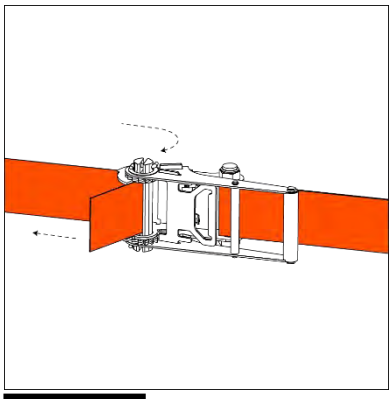


Figure 60

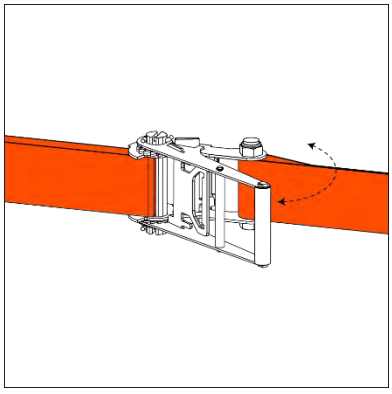


Figure 61

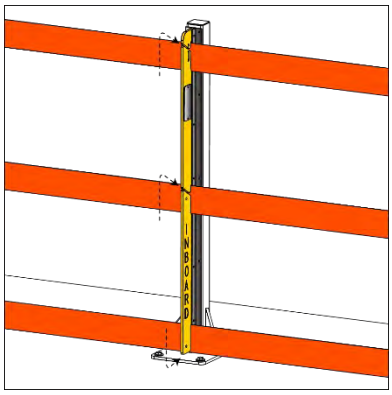


Figure 62

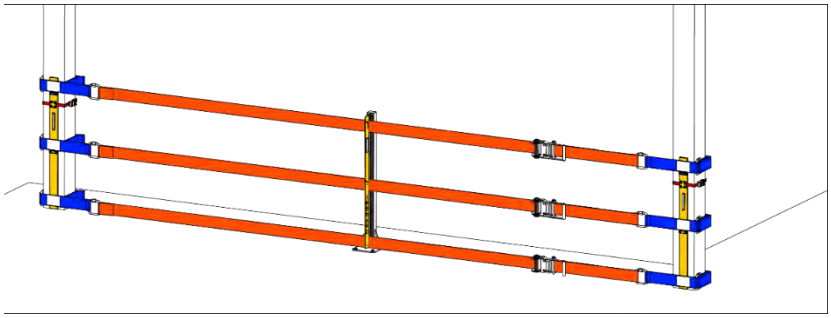


Figure 63

⚠ WARNING

- Extending the ratchet handle with a pipe, crowbar, or other means of leverage will dangerously increase the tension in the strap.
- The over tensioned orange strap could fail, or bend and collapse the building's columns and drop the ceiling, causing serious injury or death.
- Do not modify or extend the ratchet handle.

⚠ WARNING

- Once the ratchet tension is released the guardrail will no longer provide safe fall protection.
- Workers standing near the guardrail could lose their balance and fall over the slackened straps. A fall from a height of 6 ft. (1.8 meters) is enough to cause serious injury or death.
- Always warn co-workers to move well away from the edge before releasing the tension and dropping the guardrail. Use a personal fall arrest system (for example: a harness, lanyard, and anchorages) when working near a floor edge that is not fall protected.

⚠ CAUTION

- A highly tensioned ratchet will produce a loud bang and may spark when the tension is released. The sound will be similar to that of a gun firing.
- The noise can cause hearing damage and startle co-workers.
- Wear ear protection and warn co-workers before releasing the tension.

6. Install the Clamp Posts

i) Attach the Anti-Deflection Post to the railing straps. (Fig. 64)

ii) Clamp the post securely to all 3 straps. (Fig. 65)

iii) Use the supplied green Spacer Strap to ensure that the distance between any 2 posts does not exceed 10 feet. Install additional Anti-Deflection Posts where needed. (Fig. 66)

iv) The Anti-Deflection Posts will stiffen the barrier, and together with the Guide Posts prevent deflection of the straps below the OSHA minimum height of 39” if a worker were to fall against the barrier. (Fig. 67)

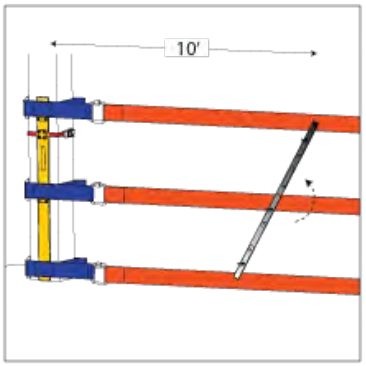


Figure 64

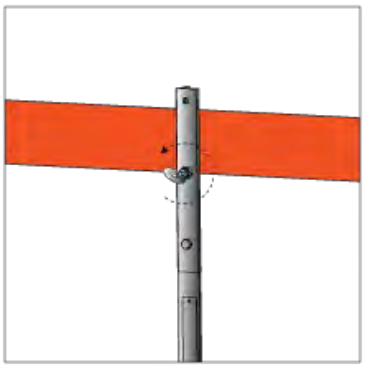


Figure 65

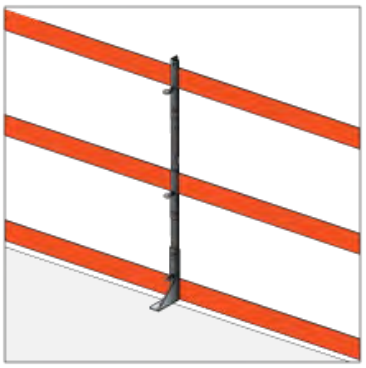


Figure 66

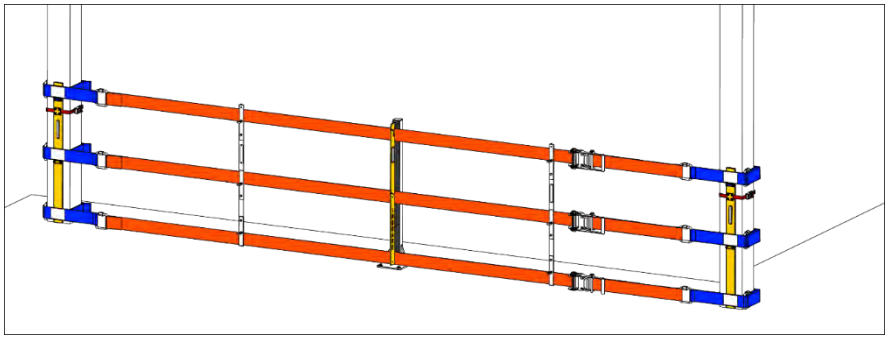


Figure 67

7. Prevent Tampering (Figs. 68-69)

- You can padlock the Ratchets, Anti-Deflection Posts, and Basic Column Posts to prevent tampering.
- Order additional padlocks as needed from Superchute.
- All StrapRail padlocks are keyed alike (the same key opens all padlocks).
- Figure 71 illustrates the use of a zip tie instead of a padlock. Use a zip tie to trap the top rail strap so that it cannot escape the column post. Use zip ties with a minimum breaking strength of 100 lb.

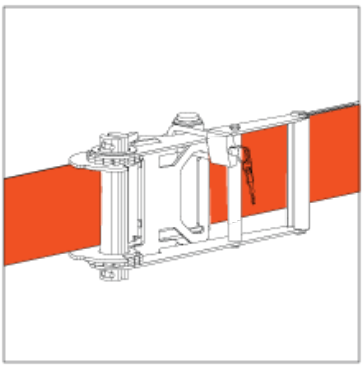


Figure 68

Figure 69

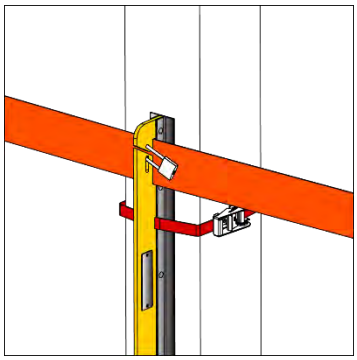


Figure 70

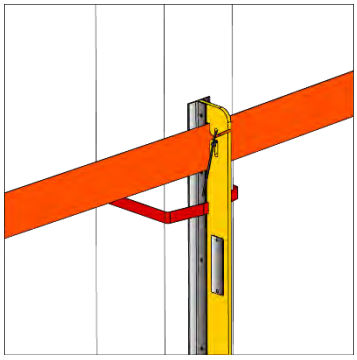


Figure 71

8. Extending the System (Figs. 70-73)

- The design of the Noose Post, Inline Post, Corner Post, allows for the system to be easily extended if necessary.

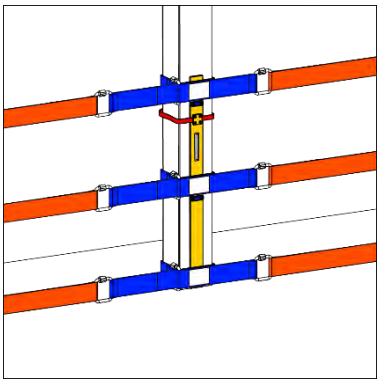


Figure 72

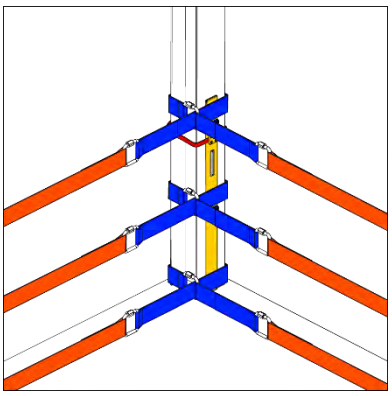


Figure 73

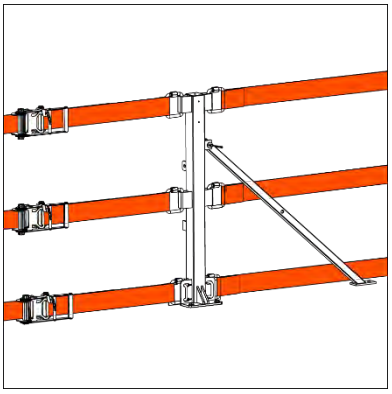


Figure 74

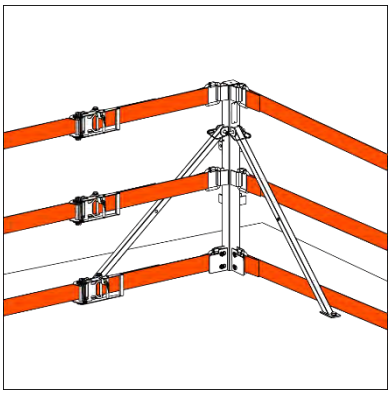


Figure 75

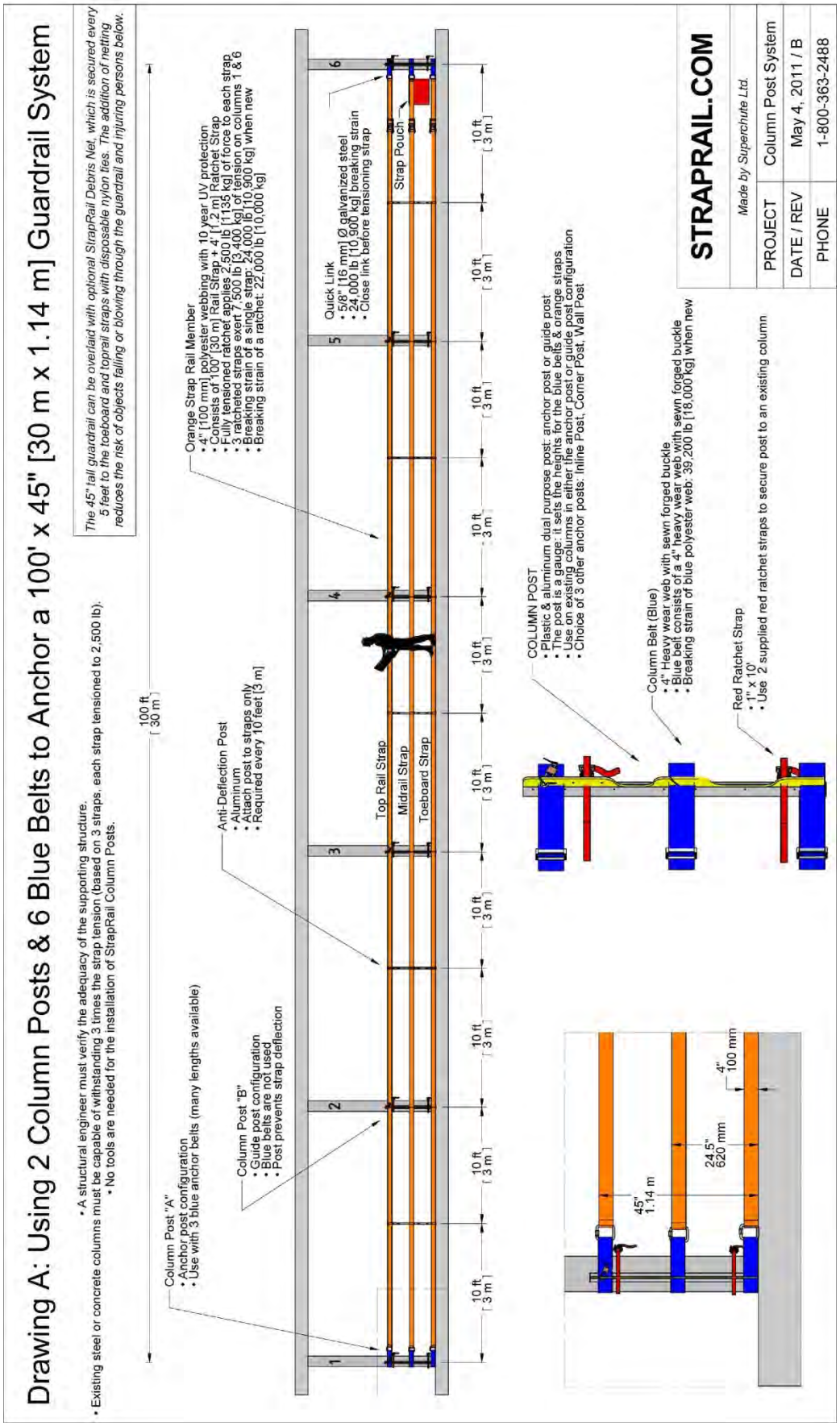

StrapRail®

APPENDIX A - Typical Layouts

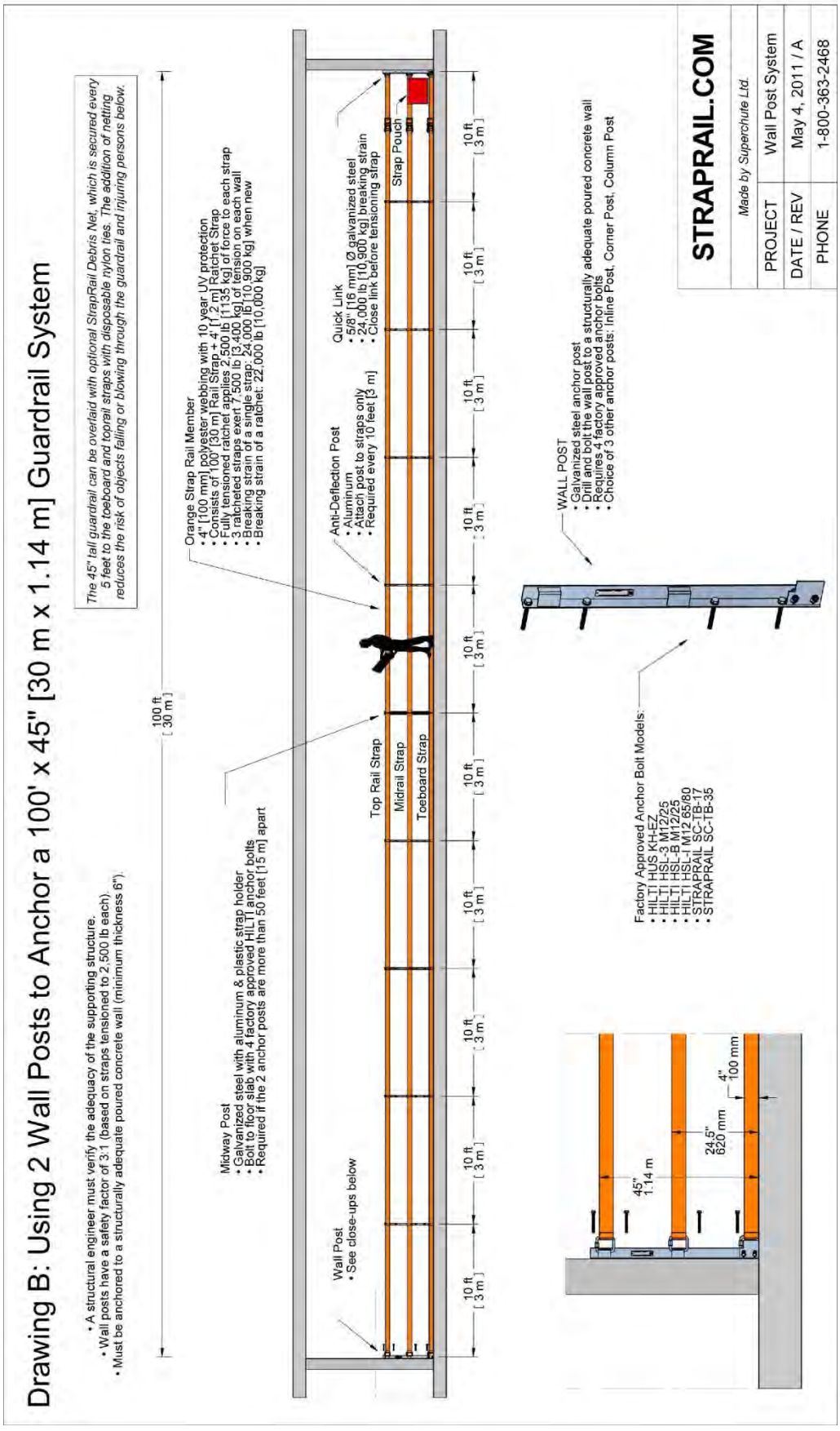
All drawings in Appendix A can be downloaded at www.superchute.com/guardrail-documents

Drawings show 100’ straps. Shorter and longer strap lengths are available.

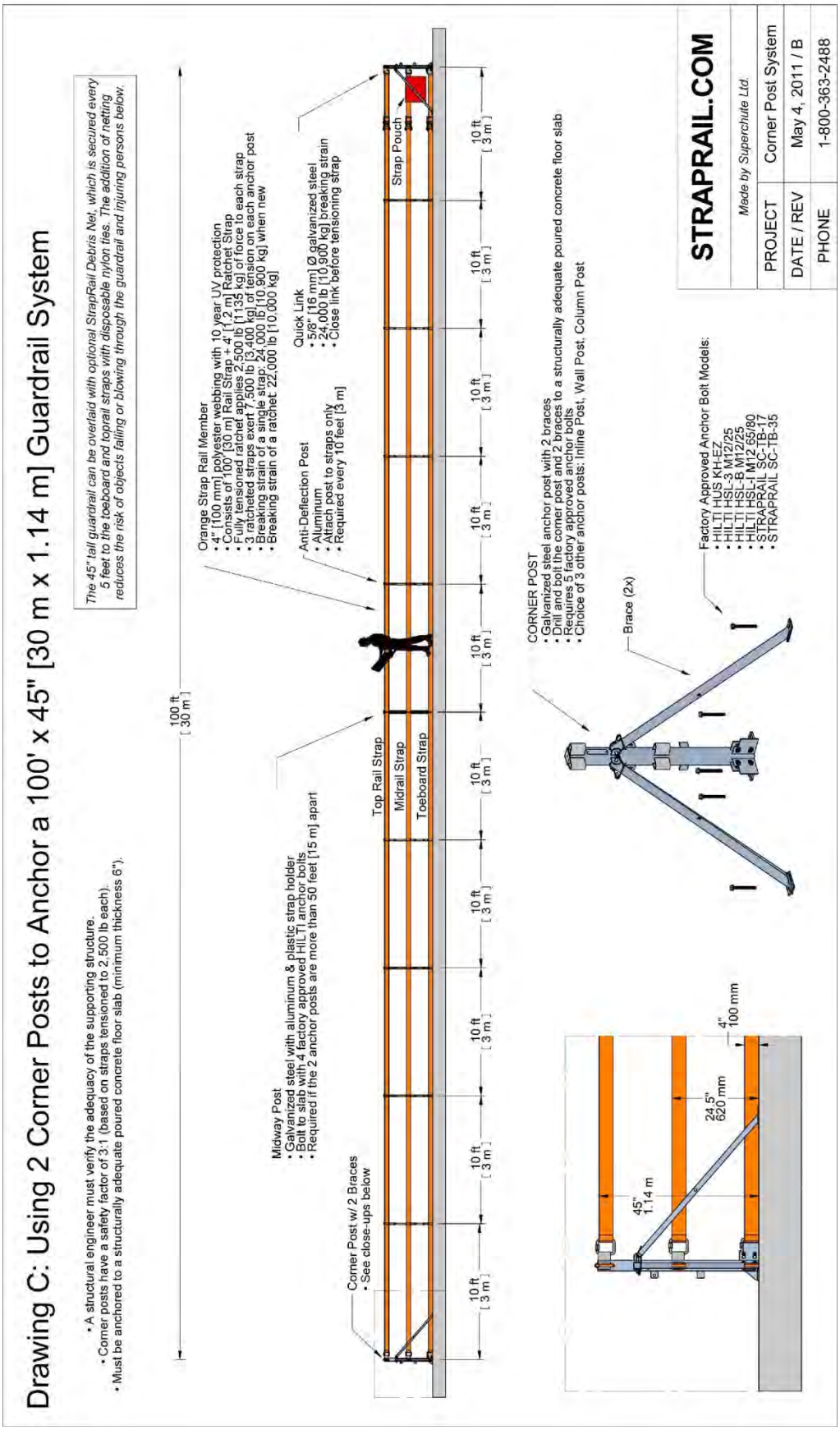
The maximum strap length is 150 ft.


Drawing A: Using 2 Column Posts & 6 Blue Belts to Anchor a 100' x 45" [30 m x 1.14 m] Guardrail System
• A structural engineer must verify the adequacy of the supporting structure.
• Existing steel or concrete columns must be capable of withstanding 3 times the strap tension (based on 3 straps. each strap tensioned to 2,500 lb).
• No tools are needed for the installation of StrapRail Column Posts.
The 45" tall guardrail can be overlaid with optional StrapRail Debris Net, which is secured every 5 feet to the toeboard and toprail straps with disposable nylon ties. The addition of netting reduces the risk of objects falling or blowing through the guardrail and injuring persons below.
100 ft [30 m]
Column Post "A"
• Anchor post configuration
• Use with 3 blue anchor belts (many lengths available)
Column Post "B"
• Guide post configuration
• Blue belts are not used
• Post prevents strap deflection
Anti-Deflection Post
• Aluminum
• Attach post to straps only
• Required every 10 feet [3 m]
Orange Strap Rail Member
• 4" [100 mm] polyester webbing with 10 year UV protection
• Consists of 100' [30 m] Rail Strap + 4' [1.2 m] Ratchet Strap
• Fully tensioned ratchet applies 2,500 lb [1135 kg] of force to each strap
• 3 ratcheted straps exert 7,500 lb [3,400 kg] of tension on columns 1 & 6
• Breaking strain of a single strap: 24,000 lb [10,900 kg] when new
• Breaking strain of a ratchet: 22,000 lb [10,000 kg]
Quick Link
• 5/8" [16 mm] Ø galvanized steel
• 24,000 lb [10,900 kg] breaking strain
• Close link before tensioning strap
Strap Pouch
Top Rail Strap
Midrail Strap
Toeboard Strap
1
2
3
4
5
6
10 ft [3 m]
COLUMN POST
• Plastic & aluminum dual purpose post: anchor post or guide post
• The post is a gauge: it sets the heights for the blue belts & orange straps
• Use on existing columns in either the anchor post or guide post configuration
• Choice of 3 other anchor posts: Inline Post, Corner Post, Wall Post
Column Belt (Blue)
• 4" Heavy wear web with sewn forged buckle
• Blue belt consists of a 4" heavy wear web with sewn forged buckle
• Breaking strain of blue polyester web: 39,200 lb [18,000 kg] when new
Red Ratchet Strap
• 1" x 10'
• Use 2 supplied red ratchet straps to secure post to an existing column
45" 1.14 m
24.5" 620 mm
4" 100 mm
STRAPRAIL.COM
Made by Superchute Ltd.
PROJECT | Column Post System
DATE / REV | May 4, 2011 / B
PHONE | 1-800-363-2488

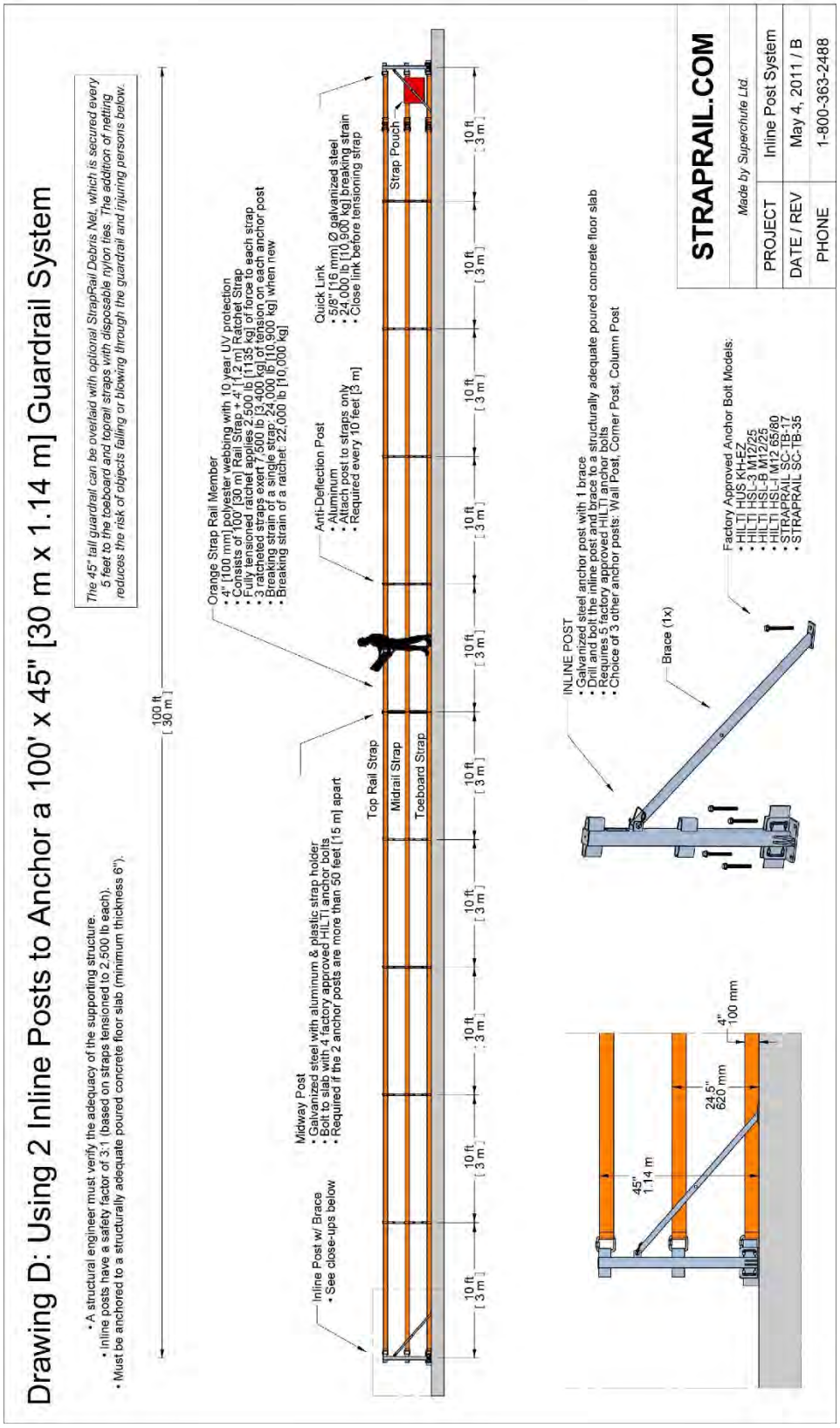
Drawing A


Drawing B: Using 2 Wall Posts to Anchor a 100' x 45" [30 m x 1.14 m] Guardrail System
• A structural engineer must verify the adequacy of the supporting structure.
• Wall posts have a safety factor of 3:1 (based on straps tensioned to 2,500 lb each)
• Must be anchored to a structurally adequate poured concrete wall (minimum thickness 6").
The 45" tall guardrail can be overlaid with optional StrapRail Debris Net, which is secured every 5 feet to the toeboard and toprail straps with disposable nylon ties. The addition of netting reduces the risk of objects falling or blowing through the guardrail and injuring persons below.
100 ft [30 m]
Orange Strap Rail Member
• 4" [100 mm] polyester webbing with 10 year UV protection
• Consists of 100' [30 m] Rail Strap + 4' [1.2 m] Ratchet Strap
• Fully tensioned ratchet: 2,500 lb [1,135 kg] chlorine resistant
• 3 ratcheted straps per section: 7,500 lb [3,400 kg] total strength on each wall
• Breaking strain of a single strap: 24,000 lb [10,900 kg] when new
• Breaking strain of a ratchet: 22,000 lb [10,000 kg]
Midway Post
• Galvanized steel with aluminum & plastic strap holder
• Bolt to floor slab with 4 factory approved HILTI anchor bolts
• Required if the 2 anchor posts are more than 50 feet [15 m] apart
Wall Post
• See close-ups below
Top Rail Strap
Midrail Strap
Toeboard Strap
Anti-Deflection Post
• Aluminum
• Attach post to straps only
• Required every 10 feet [3 m]
Quick Link
• 5/8" [16 mm] Ø galvanized steel
• 24,000 lb [10,900 kg] breaking strain
• Close link before tensioning strap
Strap Pouch
10 ft [3 m]
WALL POST
• Galvanized steel anchor post
• Drill and bolt the wall post to a structurally adequate poured concrete wall
• Requires 4 factory approved anchor bolts
• Choice of 3 other anchor posts: Inline Post, Corner Post, Column Post
Factory Approved Anchor Bolt Models:
• HILTI HUS KH-EZ
• HILTI HSL-3 M12/25
• HILTI HSL-B M12/25
• HILTI HSL-I M12 65/80
• STRAPRAIL SC-TB-17
• STRAPRAIL SC-TB-35
45" 1.14 m
24.5" 620 mm
4" 100 mm
STRAPRAIL.COM
Made by Superchute Ltd.
PROJECT Wall Post System
DATE / REV May 4, 2011 / A
PHONE 1-800-363-2468

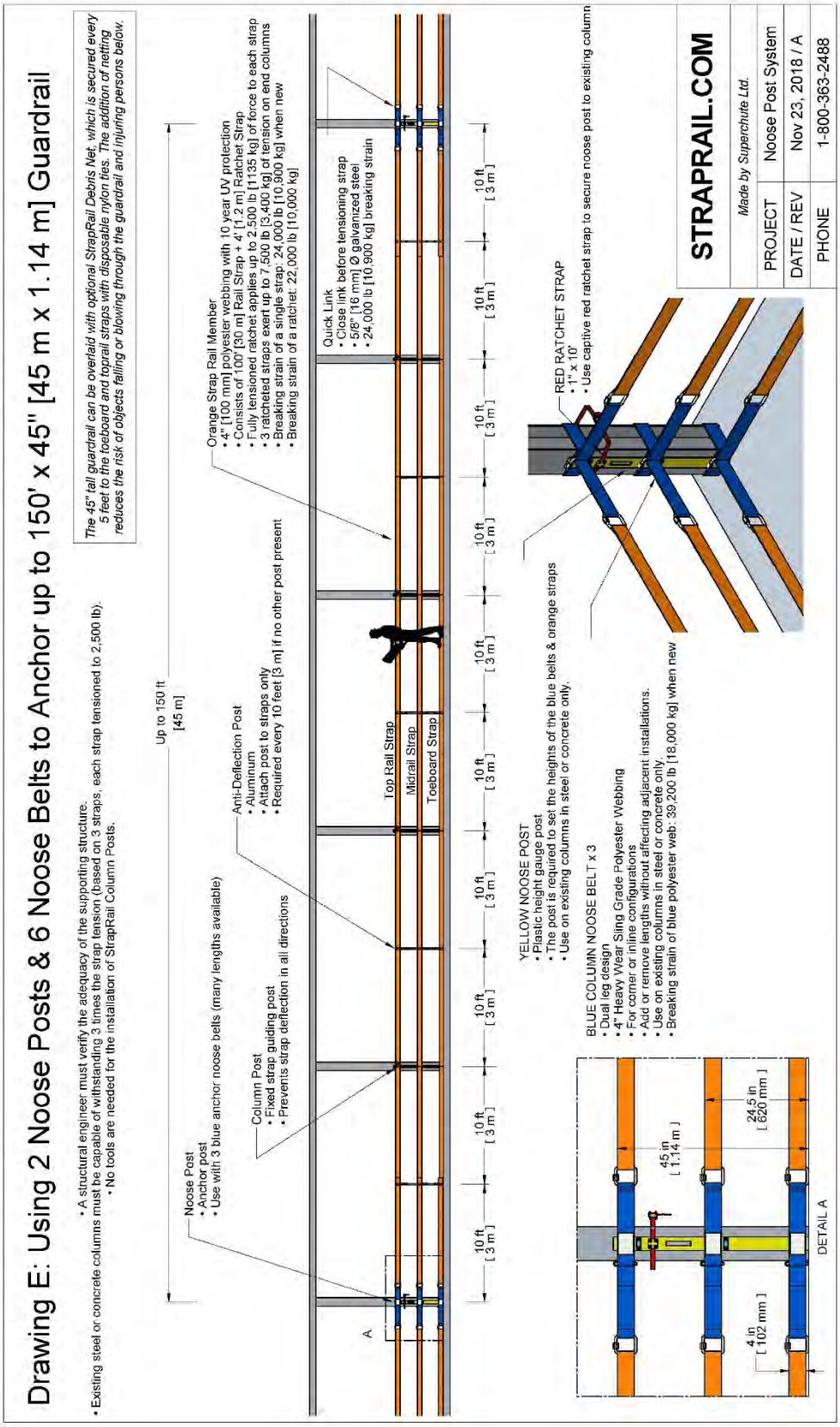
Drawing B


Drawing C: Using 2 Corner Posts to Anchor a 100' x 45" [30 m x 1.14 m] Guardrail System
• A structural engineer must verify the adequacy of the supporting structure.
• Corner posts have a safety factor of 3:1 (based on straps tensioned to 2,500 lb each).
• Must be anchored to a structurally adequate poured concrete floor slab (minimum thickness 6").
The 45" tall guardrail can be overlaid with optional StrapRail Debris Net, which is secured every 5 feet to the toeboard and toprail straps with disposable nylon ties. The addition of netting reduces the risk of objects falling or blowing through the guardrail and injuring persons below.
100 ft [30 m]
Orange Strap Rail Member
• 4" [100 mm] polyester webbing with 10 year UV protection
• Consists of 100' [30 m] Rail Strap + 4' [1.2 m] Ratchet Strap
• Fully tensioned ratchet applies 2,500 lb [1135 kg] of force to each strap
• 3 ratcheted straps exert 7,500 lb [3,400 kg] of tension on each anchor post
• Breaking strain of a single strap: 24,000 lb [10,900 kg] when new
• Breaking strain of a ratchet: 22,000 lb [10,000 kg]
Anti-Deflection Post
• Aluminum
• Attach post to straps only
• Required every 10 feet [3 m]
Quick Link
• 5/8" [16 mm] Ø galvanized steel
• 24,000 lb [10,900 kg] breaking strain
• Close link before tensioning strap
Strap Pouch
Midway Post
• Galvanized steel with aluminum & plastic strap holder
• Bolt to slab with 4 factory approved HILTI anchor bolts
• Required if the 2 anchor posts are more than 50 feet [15 m] apart
Top Rail Strap
Midrail Strap
Toeboard Strap
10 ft [3 m]
Corner Post w/ 2 Braces
• See close-ups below
CORNER POST
• Galvanized steel anchor post with 2 braces
• Drill and bolt the corner post and 2 braces to a structurally adequate poured concrete floor slab
• Requires 5 factory approved anchor bolts
• Choice of 3 other anchor posts: Inline Post, Wall Post, Column Post
Brace (2x)
Factory Approved Anchor Bolt Models:
• HILTI HUS KH-EZ
• HILTI HSL-3 M12/25
• HILTI HSL-B M12/66/80
• STRAPRAIL SC-TB-17
• STRAPRAIL SC-TB-35
45" 1.14 m
24.5" 620 mm
4" 100 mm
STRAPRAIL.COM
Made by Superchute Ltd.
PROJECT Corner Post System
DATE / REV May 4, 2011 / B
PHONE 1-800-363-2488

Drawing C


Drawing D: Using 2 Inline Posts to Anchor a 100' x 45" [30 m x 1.14 m] Guardrail System
• A structural engineer must verify the adequacy of the supporting structure.
• Inline posts have a safety factor of 3:1 (based on straps tensioned to 2,500 lb each).
• Must be anchored to a structurally adequate poured concrete floor slab (minimum thickness 6").
The 45" tall guardrail can be overlaid with optional StrapRail Debris Net, which is secured every 5 feet to the toeboard and toprail straps with disposable nylon ties. The addition of netting reduces the risk of objects falling or blowing through the guardrail and injuring persons below.
100 ft [30 m]
Orange Strap Rail Member
• 4" [100 mm] polyester webbing with 10 year UV protection
• Consists of 100' [30 m] Rail Strap + 4' [1.2 m] Ratchet Strap
• Fully tensioned ratchet applies 2,500 lb [11.35 kg] of force to each strap
• 3 ratcheted straps exert 7,500 lb [3,400 kg] of tension on each anchor post
• Breaking strain of a single strap: 24,000 lb [10,900 kg] when new
• Breaking strain of a ratchet: 22,000 lb [10,000 kg]
Quick Link
• 5/8" [16 mm] Ø galvanized steel
• 24,000 lb [10,900 kg] breaking strain
• Close link before tensioning strap
Strap Pouch
Anti-Deflection Post
• Aluminum
• Attach post to straps only
• Required every 10 feet [3 m]
Midway Post
• Galvanized steel with aluminum & plastic strap holder
• Bolt to slab with 4 factory approved HILTI anchor bolts
• Required if the 2 anchor posts are more than 50 feet [15 m] apart
Top Rail Strap
Midrail Strap
Toeboard Strap
Inline Post w/ Brace
• See close-ups below
10 ft [3 m]
INLINE POST
• Galvanized steel anchor post with 1 brace
• Drill and bolt the inline post and brace to a structurally adequate poured concrete floor slab
• Requires 5 factory approved HILTI anchor bolts
• Choice of 3 other anchor posts: Wall Post, Corner Post, Column Post
Brace (1x)
Factory Approved Anchor Bolt Models:
• HILTI HUS-KH EZ
• HILTI HSL-3 M12/25
• HILTI HSL-B M12/25
• HILTI HSL-I M12 65/80
• STRAPRAIL SC-TB-17
• STRAPRAIL SC-TB-35
45" 1.14 m
24.5" 620 mm
4" 100 mm
STRAPRAIL.COM
Made by Superchute Ltd.
PROJECT Inline Post System
DATE / REV May 4, 2011 / B
PHONE 1-800-363-2488

Drawing D


Drawing E: Using 2 Noose Posts & 6 Noose Belts to Anchor up to 150' x 45" [45 m x 1.14 m] Guardrail
• A structural engineer must verify the adequacy of the supporting structure.
• Existing steel or concrete columns must be capable of withstanding 3 times the strap tension (based on 3 straps, each strap tensioned to 2,500 lb).
• No tools are needed for the installation of StrapRail Column Posts.
The 45" tall guardrail can be overlaid with optional StrapRail Debris Net, which is secured every 5 feet to the toeboard and toprail straps with disposable nylon ties. The addition of netting reduces the risk of objects falling or blowing through the guardrail and injuring persons below.
Up to 150 ft [45 m]
Noose Post
• Anchor post
• Use with 3 blue anchor noose belts (many lengths available)
Column Post
• Fixed strap guiding post
• Prevents strap deflection in all directions
Anti-Deflection Post
• Aluminum
• Attach post to straps only
• Required every 10 feet [3 m] if no other post present
Orange Strap Rail Member
• 4" [100 mm] polyester webbing with 10 year UV protection
• Consists of 100' [30 m] Rail Strap + 4' [1.2 m] Ratchet Strap
• Fully tensioned ratchet applies up to 2,500 lb [1135 kg] of force to each strap
• 3 ratcheted straps exert up to 7,500 lb [3,400 kg] of tension on end columns
• Breaking strain of a single strap: 24,000 lb [10,900 kg] when new
• Breaking strain of a ratchet: 22,000 lb [10,000 kg]
Quick Link
• Close link before tensioning strap
• 5/8" [16 mm] Ø galvanized steel
• 24,000 lb [10,900 kg] breaking strain
Top Rail Strap
Midrail Strap
Toeboard Strap
10 ft [3 m]
A
YELLOW NOOSE POST
• Plastic height gauge post
• The post is required to set the heights of the blue belts & orange straps
• Use on existing columns in steel or concrete only.
BLUE COLUMN NOOSE BELT x 3
• Dual leg design
• 4" Heavy Wear Sling Grade Polyester Webbing
• For corner or inline configurations
• Add or remove lengths without affecting adjacent installations.
• Use on existing columns in steel or concrete only.
• Breaking strain of blue polyester web: 39,200 lb [18,000 kg] when new
RED RATCHET STRAP
• 1" x 10'
• Use captive red ratchet strap to secure noose post to existing column
45 in [1.14 m]
24.5 in [620 mm]
4 in [102 mm]
DETAIL A
STRAPRAIL.COM
Made by Superchute Ltd.
PROJECT Noose Post System
DATE / REV Nov 23, 2018 / A
PHONE 1-800-363-2488

Drawing E

APPENDIX B - Safety Labels

Label 1: This label is sewn onto every Orange Rail Strap and every Orange Ratchet Strap

StrapRail™ — **Temporary Guardrail System for Construction Sites**
Can be configured as a floor to ceiling debris barrier

SR-1000

⚠ WARNING

- Read supplied manual (available at www.straprail.com) before installing, modifying, or dismantling the barrier.
- Failure to follow manufacturer's instructions may result in injury or death of installers, workers, or public.
- Check that a structural engineer has verified the adequacy of the supporting structure prior to installation.
  - Each tensioned barrier strap exerts 2500 lb (1100 kg) of horizontal force on the structural anchors.
  - The breaking strain of each barrier strap is 20,000 lb (9,000 kg) when new.
- Use personal fall arrest systems when installing, modifying, or dismantling the barrier.
- Do not use the installed barrier as a lifeline (do not attach personal fall arrest systems to the barrier).
- Do not use for lifting, towing, or any use other than as a barrier system. Do not twist or tie knots in the strap.
- Discard strap if cut or damaged. Protect strap from sharp edges, abrasion, hot surfaces, acids, alkalis.
- Do not lean equipment or materials on the erected barrier. Do not weld near the barrier.

STORAGE

- Ensure the polyester strap is dry before storing it in the supplied duffel bag.
- Keep the strap out of direct sunlight when it is not in use.

INSPECTION

- Daily Verification: Inspect the installed barrier system daily. Tension the straps if needed.
- Inspection Program: - Each label is printed with a unique serial number (look under strap lip).
  - Square box on stitch pattern contains RFID chip. Read chip number with RFID scanner.
  - Inspect, scan, and record your observations at www.straprail.com.

Meets OSHA, CSST
StrapRail™ is made in Montreal, Canada by Superchute Ltd. 1-800-363-2488 www.straprail.com

30. Oct 2009

Label 1

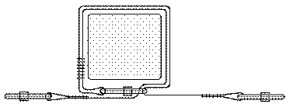
Label 2: This label is sewn onto every Blue Noose Belt

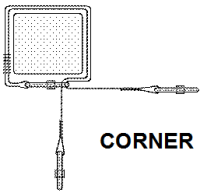
StrapRail® Belt — **Temporary Guardrail for Construction Sites**
Can be configured as a floor to ceiling debris barrier

INSTALLATION:

1. Fasten a plastic Noose Post to the column. This will set the 3 straps at the correct height.
2. Wrap 3 short lengths of orange webbing around the column. Secure with Velcro or duct tape. These orange bands will prevent chafe, cutting, & wear of the 3 blue nooses.
3. Pass both legs of the blue noose belt around the column and through the StrapRail Quick Link.
4. Use the belt like a choker sling around the column. The diagrams below show the correct installation.
5. If necessary, tuck a rubber wear pad behind the Quick Link to prevent it from biting into the column.
6. Connect each noose leg to an orange railing strap by means of a StrapRail Quick Link.
7. Apply ratchet tension.

INLINE





CORNER

Meets OSHA, CSST
StrapRail is made in Montreal, Canada by Superchute Ltd. Tel. 1-800-363-2488

PART # SR-CBN-12

Label 2

Label 3: This label is sewn onto every Blue Noose Belt

StrapRail® Belt — **Temporary Guardrail for Construction Sites**
Can be configured as a floor to ceiling debris barrier

DESCRIPTION:

- Column Belt Anchor - Noose Style
- Blue sling grade polyester webbing: 6' x 4"
- For use on square columns measuring up to 12" x 12" or round columns up to 12" diameter
- Supplied with 1 StrapRail Quick Link
- Contact the Superchute factory for other lengths of noose belt.

DESIGN:

- Use noose belts to set StrapRail anchors on existing structural columns (steel or concrete columns only).
- A single noose belt serves up to 2 orange railing straps. You can use either leg independently.
- Each tensioned leg of the noose belt will apply 2500 lb of lateral force to the column.
- A structural engineer must verify the adequacy of the selected columns before the installation is performed.
- Noose belts provide system independence: You can slacken an orange railing strap without a knock-on effect.

Meets OSHA, CSST
StrapRail is made in Montreal, Canada by Superchute Ltd. Tel. 1-800-363-2488

PART # SR-CBN-12

18. Dec 2019 CBN-0001 18. Dec 2019 CBN-0001

Label 3

APPENDIX C - Compliance

Compliance with North American Regulations

The StrapRail System, when properly installed, is designed to meet the many construction guardrail regulations in effect in jurisdictions across North America, including those of the U.S. Dept. of Labor:

OSHA Regulations (Standards – 29 CFR)
Part 1926 Safety and Health Regulations for Construction
Subpart M - Fall Protection
1926.502

OSHA Extracts Concerning Worker Fall Protection
1926.502(b)(1)

TOP RAILS "Top edge height of top rails … shall be 42 inches (107 cm) plus or minus 3 inches (8 cm) above the walking/working level."

1926.502(b)(2)

MIDRAILS "Midrails, screens, mesh, intermediate vertical members, or equivalent intermediate structural members shall be installed between the top edge of the guardrail system and the walking/working surface when there is no wall or parapet wall at least 21 inches (53 cm) high."

1926.502(b)(2)(iv)

OPENINGS "Other structural members (such as additional midrails and architectural panels) shall be installed such that there are no openings in the guardrail system that are more than 19 inches (.5 m) wide."

OSHA Extracts Concerning Falling Object Protection
1926.502(j)(2)

TOEBOARDS "Toeboards shall be a minimum of 3.5" (9 cm) in vertical height from their top edge to the level of the walking/working surface. They shall have not more than ¼" (0.6 cm) clearance above the walking/working surface."

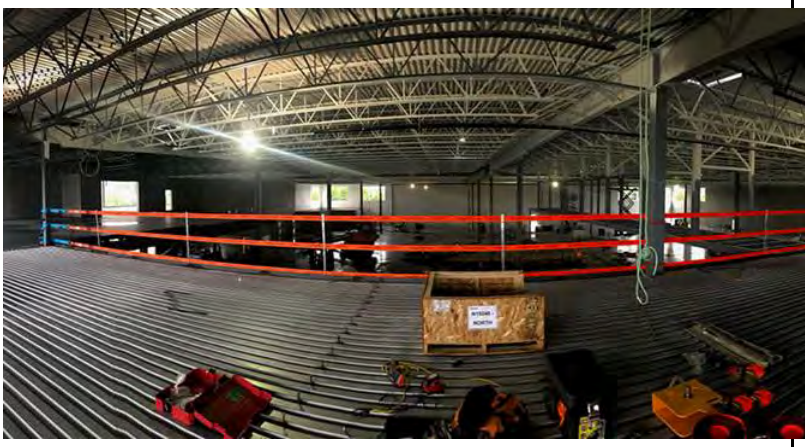
1926.502(j)(5)

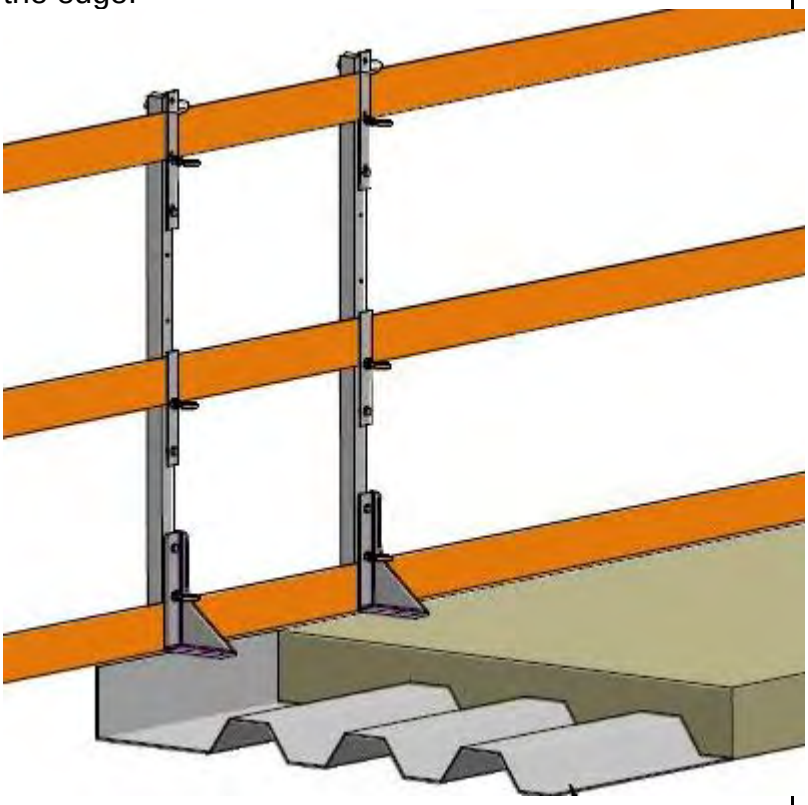
OPENINGS "Guardrail systems, when used as falling object protection, shall have all openings small enough to prevent passage of potential falling objects."

APPENDIX D - Benefits as Compared to other Systems

The Enhanced Fall Protection Benefits of StrapRail

	Benefit	StrapRail	Other Systems
1	Self-Test	Each railing member is under constant self-test due to the high ratchet tension of each strap. If the end anchors are not suitable they will be visibly unable to withstand the high strap tension. The fully tensioned state indicates that the system has been correctly anchored. Conversely if the guardrail is severely compromised, the sagging straps will provide immediate warning. 	It is generally impossible to evaluate the readiness of other guardrail systems with regards to their ability to withstand a fall, without conducting impractical onsite testing.
2	Immense Strength	20,000 lb. MBS per orange rail strap 40,000 lb. MBS per blue column anchor strap The high capacity of the webbing allows StrapRail to greatly exceed the code requirements and performance expectations for a temporary guardrail system in any jurisdiction.	Weak in comparison
3	Powerful Tensioning Device	The generous lever on the large 4” ratchet provides powerful purchase. The mechanical power of the ratchet ensures that adequate tension can be attained. *“Tension the ratchet as much as possible to maximum exertion”*. This application of maximum exertion results in maximum strap tension.	Inconsistent tensioning of a wire rope system can lead to sag. The slack can migrate to the point of impact and lead to a worker toppling over the railing.

4	Padlocked Ratchets	Padlocks on every ratchet prevent unauthorized dismantling or tampering.	There is a greater likelihood of unauthorized alteration if the system cannot be locked out.
5	Visible Tension Indicators	Tension is easily evaluated by the installer given the following visual and tactile cues: If there is insufficient tension the straps will be slack, lack stiffness, and the heavy 3.5 kg ratchets (8 lb) will sag noticeably.	
6	Structural Integrity	The straps and clamped stiffening posts create an interlocking framework.	A loosely secured wood or steel panel railing has no structural integrity.
7	Energy Absorption	If a worker falls against the straps the flexion in the straps will absorb energy and prevent impact injuries. Any deflection of the top rail beyond the leading edge is limited and does not reduce the effectiveness of the guardrail in performing its critical function: that of stopping a fall.	Lack of energy absorption in wire rope guardrails can cause severe injury to a falling worker
8	Over Tension Safeguard	The ratchet allows the strap to be pulled to a highly tensioned level, while preventing an extreme application of tension that could collapse even substantial building columns. There is an upper limit beyond which the ratchet eventually cannot be tensioned further. As the drum fills and its diameter increases, the ratchet becomes harder and harder to action.	A wire rope and turnbuckle railing has no tension limit so there is greater risk of causing damage to the building structure.
9	Continuous Framework	The long strap spans, together with clamp posts every 10 feet provide an unbroken, continuous framework. 	Wood guardrails and steel guardrails provide a less secure “panel-by-panel” approach.

10	Printed Fall Hazard Warnings	The following warning is printed every 3 feet, over the entire length of the strap, on the inboard face. 	Other railing systems generally lack ergonomic warnings
11	Maximum Floor Access with Optimal Safety	During the construction of steel structures with concrete overlay, StrapRail provides the unique ability of being able to “float” above the work surface without requiring any floor clamping or fastening. In an edge-of-slab installation this feature allows maximum and unencumbered access to the near-entirety of a freshly poured concrete surface, which greatly assists ride-on-top troweling operations. The slim aluminum strap clamping posts rest on the floor. The optional extended foot ensures a generous engagement upon the steel edge trim or floor. The presence of a StrapRail post of some type is required every 10’. The straps must be positioned inboard of the edge. 	Every other system requires considerable fastening of posts to the floor deck which hinder concrete pouring operations. Corrugated steel decks provide a weak support for most railing systems.

12	High Visibility Rails	The system consists of high visibility orange straps that warn workers away from the edge. Typical example of a wire rope guardrail:  Typical example of a StrapRail guardrail: 	10 mm wire rope is 10 times narrower than 100 mm webbing, and far less visible to the worker.


StrapRail®

APPENDIX E - Daily Checklist

The daily inspection checklist can also be downloaded at www.superchute.com/straprail-checklist

StrapRail®

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October 2018 Edition

StrapRail Daily Inspection Checklist for Installed Systems

Date: _____

Company: _____

Job Site: _____

Inspector: _____

Inspectors are required to check the following items before commencing work. Inspect each system.

✓ OK ✘ Fault identified

1. Layout Considerations (to prevent strap friction & promote maximum strap tension):

	OK	FAULT
The system does not turn more than 1 corner.	○	○
A Plastic Corner Guard Post is used to guide the straps around a corner.	○	○
The straps are not weaving amongst the perimeter columns.	○	○
Straps are in a straight line.	○	○

2. Straps:

The installed system has 3 tensioned strap members: Top Rail, Midrail, Toeboard.	○	○
Each strap has adequate tension. Hand test each strap. Re-tension any slack strap using the ratchet.	○	○
Inspect all straps for wear, cuts, and damage. Retire the strap from service if worn.	○	○
The straps are not chafing or bearing directly against any sharp edge (check columns & corner turns).	○	○
There are no loose strap ends trailing on the floor (trip hazard).	○	○
If any hot work is to be conducted all straps in the vicinity must be protected with welding blankets.	○	○

3. Posts:

All anchor posts, guide posts, and clamp posts are properly installed and secured.	○	○
The post-to-post spacing does not exceed 10 feet. Install anti-deflection posts as needed if missing.	○	○
The anti-deflection posts are fully clamped and vertically positioned on the straps.	○	○

4. Quick Links:

The screw gate on each Quick Link is fully closed.	○	○

5. Anomalies:

Advise your supervisor or the Superchute Factory of any anomalies.	○	○

Save Submit Clear All

SUPERCHUTE®