

# LIFE R*ai*l

## Installation Procedures High Rise Floor Slab Installation

*\*\* To be kept on site while in use. \*\**

### **WITHIN BC**

Office & Fax: (604) 888-6142

Cell (John): (604) 644-2884

### **OUTSIDE BC**

Darren Grant

Toll Free: 1 877-785-7245

**Keeping You on Top**



Contact Life Rail at 1 877 785 7245 or [liferail@gmail.com](mailto:liferail@gmail.com)

# LIFE Rail

A single perimeter safety system that provides fall protection for all onsite trades.



## Keeping You on Top

### About the Life Rail System

A single perimeter safety system that provides fall protection for all onsite trades.

The Life Rail system is made up of steel cables stretched taut, and strung through upper and lower pass through coils on the stanchions. Its primary function is to provide Fall arrest and Fall restraint. It forms a horizontal lifeline to attach approved lanyards to, while also creating a barrier and with the optional debris netting a Toe board.

We recommend installing the Life Rail system approximately six feet back from the leading edge. When a crew must work outside the Life Rail perimeter, workers clip their lanyards to the nearest Life Rail cables for fall protection.

A maximum of two workers may be attached via lanyards to the cables between termination points. The two workers may attach to separate cables or to a single cable.

Use of the life rail system begins with the placement of the PVC inserts in the forms.

Clever pass through coils on the stanchions provide extra versatility. Not only can the stanchions be added or removed without unstringing the line, but also lanyard clips can slide along the cables past the stanchions without unhooking.

Single lengths of up to 300 feet of cable can be strung along the stanchions, which can be spaced up to 25 feet apart. Tensioning only requires a come along with a cable gripper (which is supplied).

The lower cable height is at approximately 533mm (21") and the upper cable height is 1066mm (42")

#### The Pass Through Coil

- The Pass-Coil is designed for simplicity.
- There are two coils on each stanchion, one is located at the top and the other is approximately 21" lower.
- Trades people are able to stay clipped to either cable while passing through a stanchion
- The design facilitates easy installation of the horizontal life line by enabling you to engage the 3/8" wire rope without pulling through lengthy cables.

#### The Horizontal Life line

- The horizontal life line consists of 300 ft. 3/8" engineered certified wire rope.
- The horizontal life line is divided into 300 ft. sections; each section of the life line is to be no longer than 300 ft. in order to meet engineer requirements.

#### The Floor Insert

- The Life Rail floor insert is constructed of light-weight, durable PVC plastic in order to prevent any future corrosion.
- A flush mounted cap is supplied with the insert. The purpose of this cap is to withhold concrete from entering the insert during the pour.
- The stability legs of the insert facilitate hassle free installation by simply replacing the rebar chair or chairs in the desired location with the unit.



Contact Life Rail at 1 877 785 7245 or [liferail@gmail.com](mailto:liferail@gmail.com)

## Installation Procedures

### High-rise Floor Slab Installation

#### Important

- > **Do not install or use the Life Rail system until you have read and fully understand these instructions.**
  - > **Install and dismantle the Life Rail system only in accordance with all Workers' Compensation Board Regulations using – certified fall protection safety harnesses.**
  - > **Use only genuine Life Rail stanchions, cables and other components.**
1. String out two cables on floor parallel to slab edges. Bring looped ends to location of the first stanchion to be installed.
  2. Place stanchion anchor in insert opening. Ensure full penetration. Welded marker on stanchion post must meet floor slab surface.
  3. Thread looped end of first cable through upper pass-through coil of stanchion and hook cable loop on upper pass-through coil.  
Thread looped end of second cable through upper pass-through coil of stanchion and hook cable loop on lower pass-through coil.
  4. Proceed to next stanchion location. Install stanchion as per step 2. Place cables in pass through coils. Stanchions must be no more than 25 feet apart.
  5. Continue installing stanchions and placing cable in pass-through coils.
  6. When remaining cable length is insufficient to continue, terminate and tension each cable as follows:
    - A. Pass cable around stanchion post and through coil at coil level.
    - B. Allowing at least 9.5 inches of turn-back, use come-along and cable gripper to ease tension cable. Cable sag must not exceed stanchion spacing divided by 120 (1" over 10' of cable).
    - C. Attach three cable clamps, all facing same direction and torque nuts to 35 lbs (ensure 9.5" of turnback min.).
    - D. Before tightening clamp nearest stanchion post, slide clamp as close to stanchion as possible to choke cable tightly around post.
  7. String out two more cables as per step 1. Attach second set of cables to termination stanchion as per step 3. Never attach one cable to another.
  8. Continue installing stanchions and placing cable in pass-through coils until full perimeter of floor slab has been completed. Terminate and tension cable at starting-point stanchion as per step 6. Coil excess cable and hang on stanchion.
  9. Whether the Life Rail system has been installed by user or supplier, user must inspect the system daily for damage or alterations that could affect performance. Immediately correct any variations discovered. Report damage at once to Life Rail at 1 877 785 7245.

#### Helpful Hints

**Avoid Snarls** – To uncoil cable quickly without snarls, impale cable coil on a plank end and draw cable off pulling from the unlooped end. When cable is entirely strung out, the looped end remains at the plank ready for attachment to first stanchion. Discard plank.

**Clock Wise** – Cable will drop more easily into the pass-through coils when working clockwise around the building perimeter.

**Pull Tight** – Life Rail protects best when the cables are very taut. Manually tension the cables with the come-along until the stanchions begin to bend in place. Tension final cable lengths enough to pull the starting -point back to a vertical position.

## Keeping You on Top

Contact Life Rail at 1 877 785 7245 or [liferail@gmail.com](mailto:liferail@gmail.com)



November 10, 1999

Project No.: 99101

LIFE RAIL LIMITED  
20951 Louis Crescent  
Langley, B.C.  
V3A 4P8



## TO WHOM IT MAY CONCERN

Dear Sir;

**RE: TESTING OF LIFE RAIL FOR CAST-IN-PLACE COLUMNS & SLAB  
CONSTRUCTION**

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As per your request, Nu-Westech Engineering Ltd. has witnessed the testing of two (2) life rail applications developed for cast-in-place concrete building construction. Both tests were conducted at the Dominion Construction site at Canada Way and Wayburne in Burnaby, B.C.

The assembly as tested in September 1999, consisted of the long straight posts as detailed on SK-1 set into the plastic inserts shown on SK-5 cast into the centre of cast-in-place concrete columns. The steel cable running some six (6) feet above the columns acted as a horizontal life line/fall arrest system during the scaffolding/formwork/re-bar placement and concrete slab casting operation.

We conclude that the tested system, with all its components and assemblies as installed at the site, is suitable and safe as a fall arrest system.

On November 8, 1999, a second assembly was tested. Its configuration is suitable for use as a guard rail as well as a fall protection, fall arrest system. It consists of vertical posts set into inserts cast into concrete slabs. The posts are located along the perimeter of the building, minimum 12" from the slab edge. Two steel cables pass through coils welded to the posts. For the trades working on a given slab, the system acts as a guard rail. Any person working outside the rails clips his lanyard onto the horizontal cable and the system will arrest a potential fall. The components are shown on drawings SK-3 and SK-6.

We conclude that the assembly as tested performed well with adequate ductility and is safe to use as a fall arrest system.

Yours very truly,

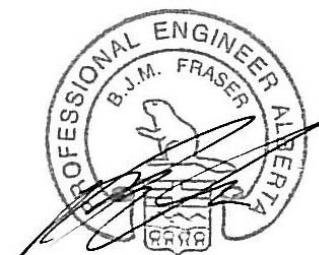
NU-WESTECH ENGINEERING LTD.

A handwritten signature in black ink, appearing to read 'P. Rufenacht'.

Peter Rufenacht, P.Eng.  
Vice-President

PAR/cg

encls.



Jan 9, 2009



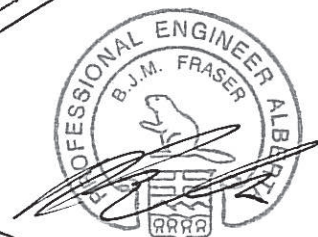
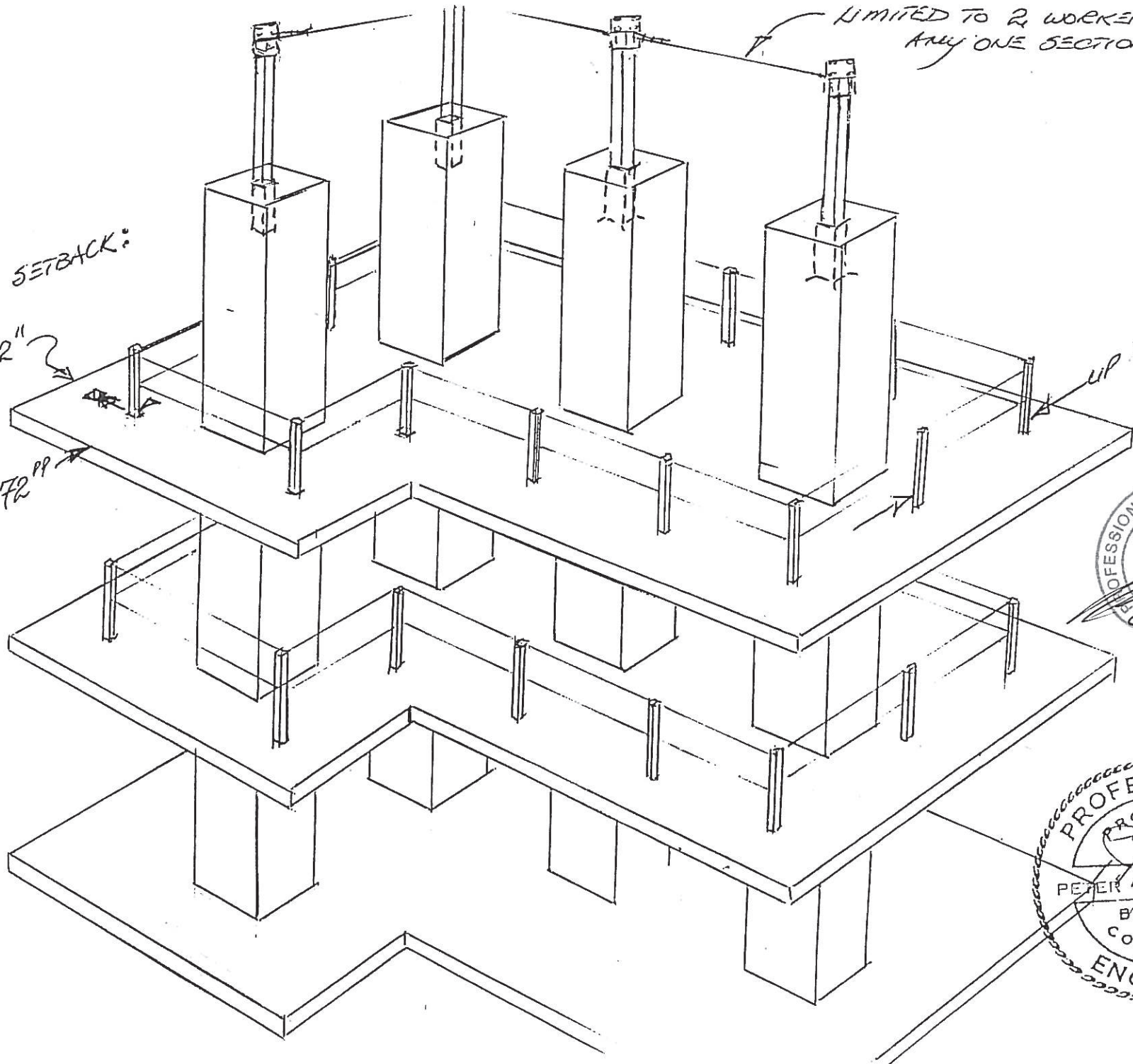
RAILING SETBACK:

MIN = 12"

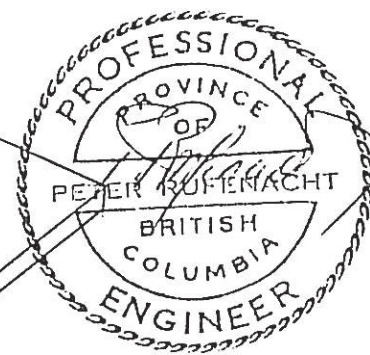
IDEAL =  
- 48" PP TO 72" PP

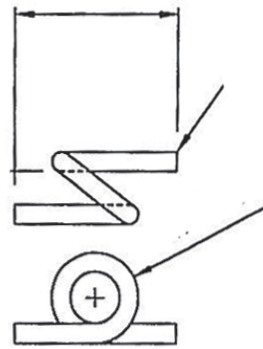
LIMITED TO 2 WORKERS  
ANY ONE SECTION.

UP TO 25' PART

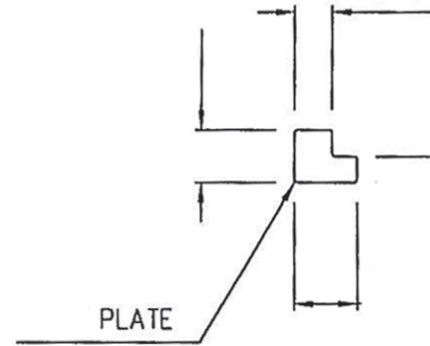


Jan 9, 2009

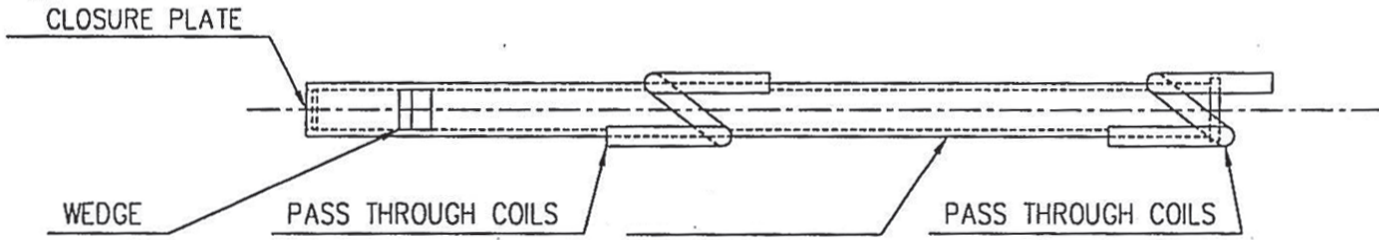
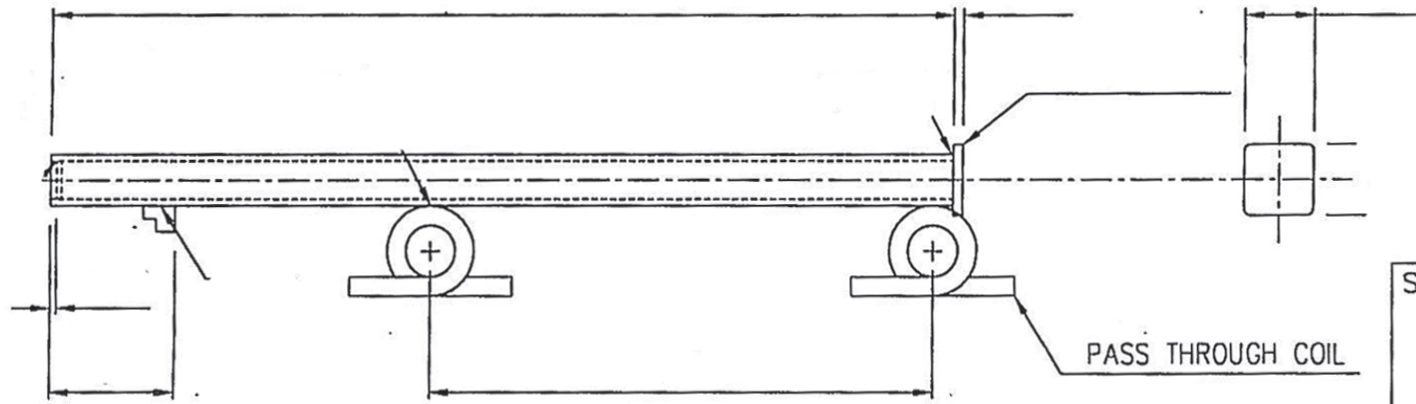
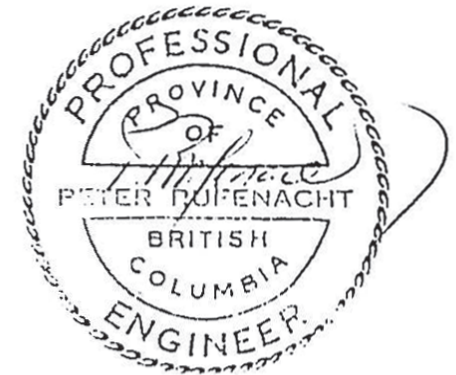




PASS THROUGH COIL  
(2 REQ'D PER UNIT)



WEDGE  
(ONE REQ'D PER UNIT)

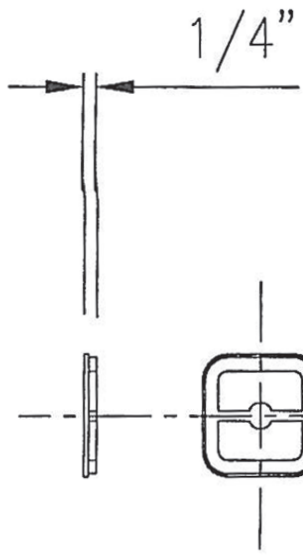


SPECIFICATIONS

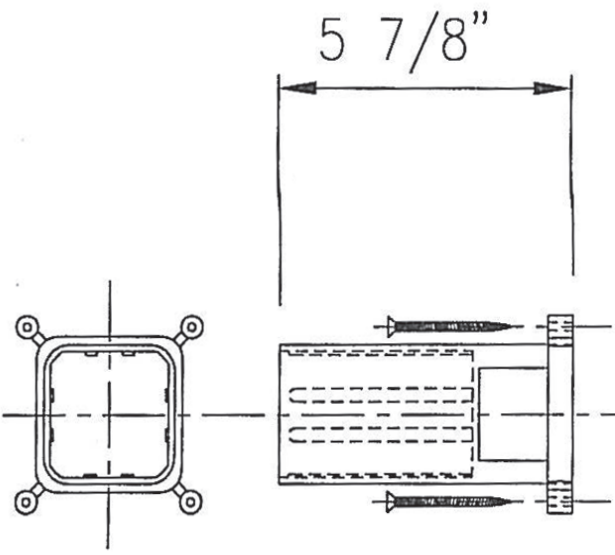
FOR MATERIAL SPECIFICATIONS SEE DRAWING B 9764-S-101



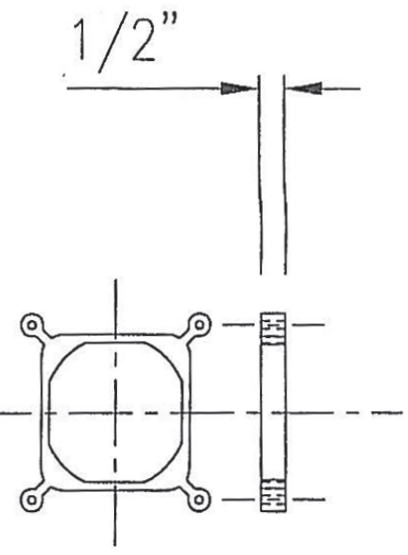
PROJECT: LIFE RAIL	DWG NAME: 48" STRAIGHT LIFE RAIL	DRAWN BY: T.J.V.	DATE: NOV 5/99	SCALE: NTS	TOLER: ± 1/16
CUSTOMER: LIFE RAIL LTD		APPROVED BY: Y.T.	DATE:	DWG NO.: SK-3	REV.: 0



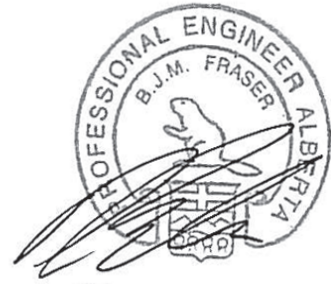
CAP



INSERT



SPACER



Jan 9, 2009



SPECIFICATIONS

1/8" THK PVC



AGGRESSIVE  
TUBE  
BENDING

PROJECT:

LIFE RAIL

CUSTOMER:

LIFE RAIL LTD

DWG NAME: 48" LIFE RAIL POST

LG PLASTIC INSERT

DRAWN BY:

T.J.V.

DATE:

NOV 5/99

SCALE

NTS

TOLER

± 1/16

APPROVED BY:

Y.T.

DATE:

DWG NO.:

SK-6

REV.

0



## NOTES:

### FABRICATION OF POSTS, MATERIAL SPECIFICATIONS

- STEEL FOR FORMED/FABRICATED POSTS SHALL BE ACCORDING TO CSA STANDARD G4021M WITH A SPECIFIED MINIMUM YIELD STRENGTH OF 350 Mpa.
- RODS FOR WIRE ROPE THROUGH EYES SHALL BE G4021 - 300W OR A36.
- PLATES FOR TOP COVER AND THREADED WEDGE PLATE SHALL BE G4021 300W OR A36.
- THROUGH BOLT FOR WEDGE SHALL BE A307.
- ALL WELDING SHALL BE ACCORDING TO CSA W591 AND ALL OPERATORS SHALL BE QUALIFIED UNDER CSA STANDARD W47.
- POSTS SHALL BE FORMED BY MEANS OF ROLLS OF SUFFICIENT DIAMETER TO AVOID EXCESSIVE CRIPPLING AT THE BENDS.

### WIRE ROPE INSTALLATION

- WIRE ROPES SHALL BE 3/8" WITH A MINIMUM BREAKING STRENGTH OF 5 TONS (10000 LBS).
- LENGTH OF WIRE ROPE SHALL BE MINIMUM 30 FEET AND MAXIMUM 300 FEET. POST SPACING SHALL BE 25 FOOT MAXIMUM.
- WIRE ROPE SHALL BE TERMINATED BY WRAPPING IT THROUGH THE THROUGH EYE AND AROUND ANCHOR POSTS. USE MINIMUM 9 1/2 INCHES OF TURNBACK. INSTALL MINIMUM THREE (3) WIRE ROPE CLIPS, TORQUED TO 30 FOOT-POUNDS OF TORQUE.
- USE MECHANICAL TENSIONING DEVICE TO TIGHTEN WIRE ROPES. MAXIMUM SAG ALLOWED IN ANY SPAN IS POST SPACING DIVIDED BY 120. THIS WILL PUT A TENSION INTO THE ROPE OF APPROXIMATELY 100 LBS.

### INSTALLATION OF POSTS

- SET POSTS INTO INSERTS TO FULL DEPTH.
- TIGHTEN THROUGH BOLT WITH MINIMUM 75 FT-LB TORQUE TO ASSURE FULL WEDGING ACTION.

### HARDWARE

- WORKERS SHALL WEAR FULL BODY HARNESS.
- ONLY APPROVED LANYARDS SHALL BE USED
- SHOCK ABSORBERS ARE OPTIONAL
- MAXIMUM NUMBERS OF WORKERS ATTACHED TO ONE LENGTH OF WIRE ROPE BETWEEN TERMINAL POINTS: 2

### INSPECTION OF SYSTEM

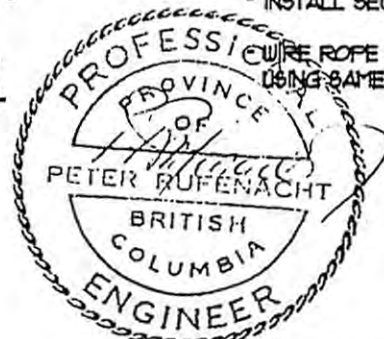
- AFTER INITIAL INSTALLATION OF THE SYSTEM AT A SPECIFIC SITE IN A SPECIFIC CONFIGURATION, THE SYSTEM SHALL BE INSPECTED BY A MANUFACTURER'S REPRESENTATIVE OR A PROFESSIONAL ENGINEER THOROUGHLY FAMILIAR WITH THE DESIGN AND LIMITATIONS OF THE LETOURNEAU LIFE-LINE.
- AFTER A FALL ARREST, ALL POSTS SHALL BE INSPECTED BY A MANUFACTURER'S REPRESENTATIVE AS WELL AS THEIR ANCHORAGE INTO THE WALL PANELS AND THE ROPE TERMINATION DETAIL. POSTS SHOWING PERMANENT DEFLECTION / DISTORTION OVER ONE (1) INCH AT THE TOP SHALL BE DISCARDED AND SENT BACK TO THE SUPPLIER.



Jan 9, 2009

### GUARD RAILS

- INSTALL SECOND WIRE ROPE AT LOWER THROUGH EYE.
- WIRE ROPE SPECIFICATION IDENTICAL TO TOP ROPE FOR FALL ARREST, USING SAME DETAILS.



REV.	BY	DATE (M.D.Y.)	DESCRIPTION
C	PWR	11/08/08	ISSUED FOR FABRICATION
B	PWR	02/04/07	GENERAL REVISION
A	PWR	06/14/07	ISSUED TO BCB

NU-WESTTECH ENGINEERING LIMITED 105 COLUMBIA ST. NEW WESTMINSTER, B.C. CANADA V3L 1B1 TEL: (604) 322-0007 FAX: (604) 322-0230			
<h2>LETOURNEAU LIFE RAIL</h2>			
SCALE	NTS	REVISION	
DATE	AUGUST 1997	CHANGED	
DRAWN	JPL	APPROVED	
TILT-UP PANEL CONSTRUCTION COMBINATION GUARD RAIL AND FALL PROTECTION - GENERAL NOTES			B9764-8101 REV. C