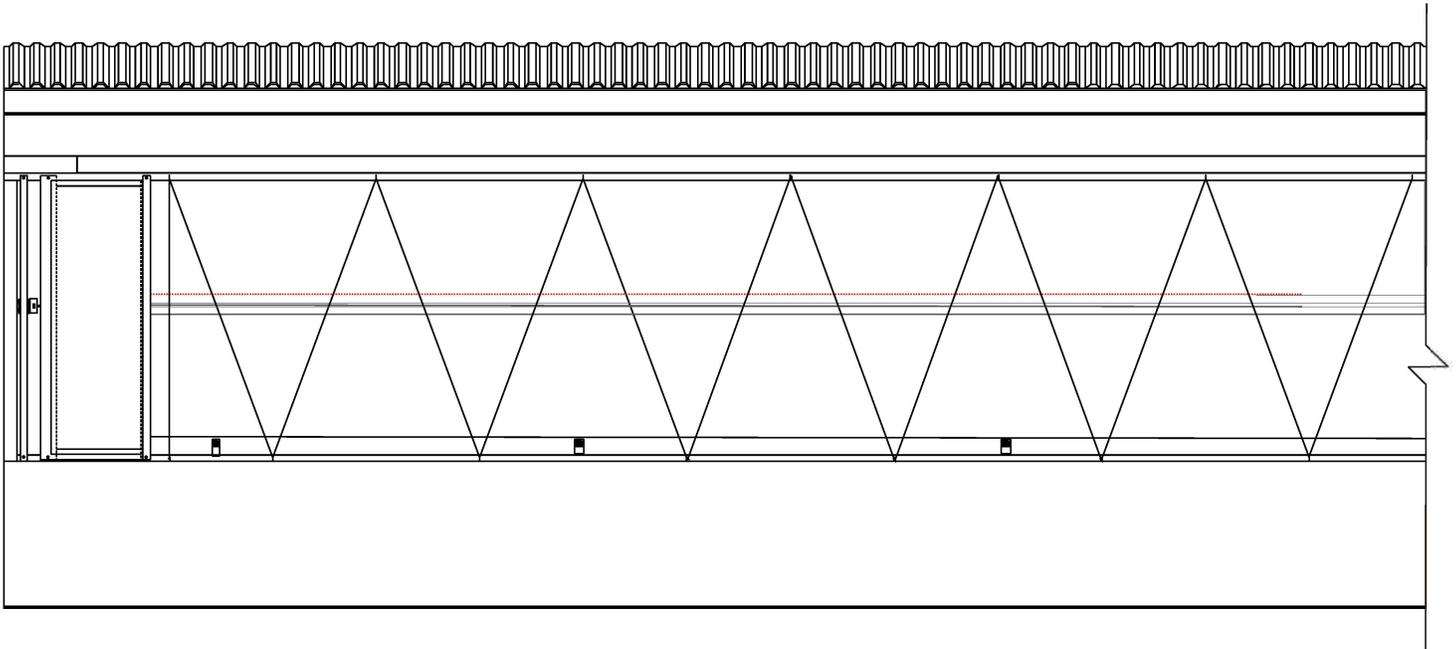


INSTALLATION INSTRUCTIONS

FOR

ROLL-UP CURTAINS

WITH WIND ROPE



SN009x2001-2007

92 RAILWAY ST. BOX 668
SEAFORTH, ONTARIO, CANADA NOK 1W0

TEL: (519) 527-2470
FAX: (519) 527-2560

To Begin Your Installation

Signal Words

The signal words “Danger”, “Warning” and “Caution” used in this manual indicate the degree of hazard that may be encountered by the user. These words are defined as:

Danger - Indicates death or serious physical injury will result if proper precautions are not taken.

Warning - Indicates death, serious physical injury or property damage can result if proper precautions are not taken.

Caution - Indicates some injury or property damage may result if proper precautions are not taken.

Qualified Persons

For the purposes of this manual and product labels, a qualified person is one who is familiar with the installation, construction, operation or maintenance of the equipment and the hazards involved. In addition this person has the following qualifications:

(a) is trained and authorized to energize, de-energize, clear, ground and tag circuits and equipment in accordance with established safety practices.

(b) is trained in the proper care and use of protective equipment such as rubber gloves, hard hat, safety glasses or face shields, flash clothing, etc., in accordance with established safety practices.

Important

These instructions do not purport to cover all details or variations in equipment, nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the Sun-North Systems sales office.

Safety

Electrical Safety



DANGER! Ignoring the following instructions can cause physical injury or death, or damage to the equipment.



WARNING! Only qualified personnel are allowed to install the drive and connections to the motor!

Never work on the drive, motor cable or motor when input power is applied. After disconnecting the input power, always wait for 5 minutes to let the intermediate circuit capacitors discharge before you start working on the drive, motor or motor cable.

Do not work on the control cables when power is applied to the drive or to the external control circuits. Externally supplied control circuits may carry dangerous voltage even when the input power of the drive is switched off.

To Begin Your Installation

General Safety

WARNING!



TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS, OBSERVE THE FOLLOWING:

- Installation work and electrical work must be done by qualified person(s) in accordance with all applicable codes and standards, including fire-rated construction.
- The installation is to be in accordance with the National Electrical Code, CSA C22.1, ANSI/NFPA 70, and local codes.
- CAUTION! This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been supervised or instruction concerning use of the appliance by a person responsible for their safety.
- Check drawings and layouts provided to locate where the equipment is to be installed.
- Ensure work area is safe and that all security, policies and procedures for the facility are met.
- Inspect the lift device or mobile platform.
- Each person installing the equipment with a lift device or mobile platform must use a safety harness at all times.
- Other safety requirements may be required for installation.
- All workspace safety requirements, lock out procedures and hoarding of construction zone for the assembly and installation must be met and followed.



WARNING!

- Never remove or disable a machine guard or use a machine that has a missing or disabled guard.
 - Never reach around, under, or through a guard.
 - Report guards that are missing or not working properly.
-

To Begin Your Installation

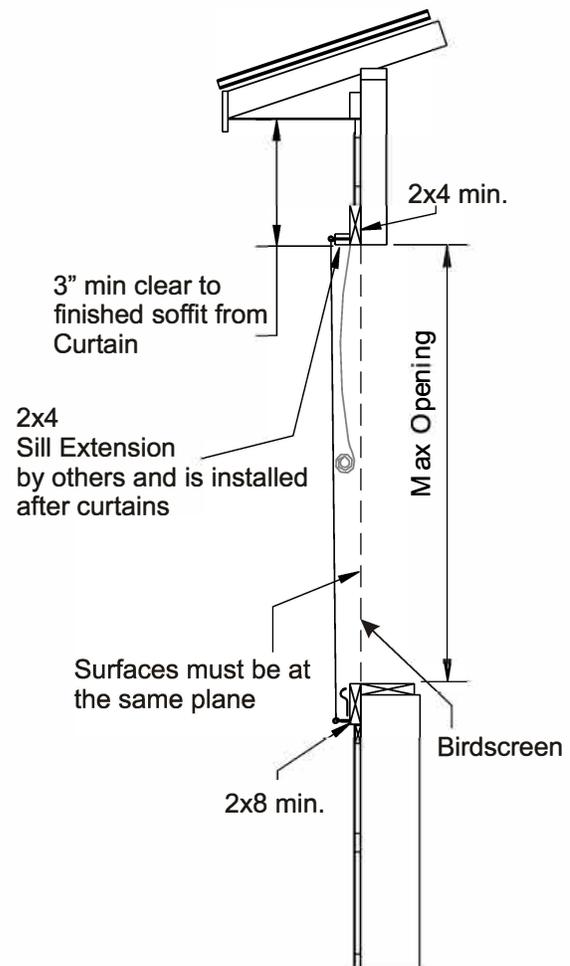
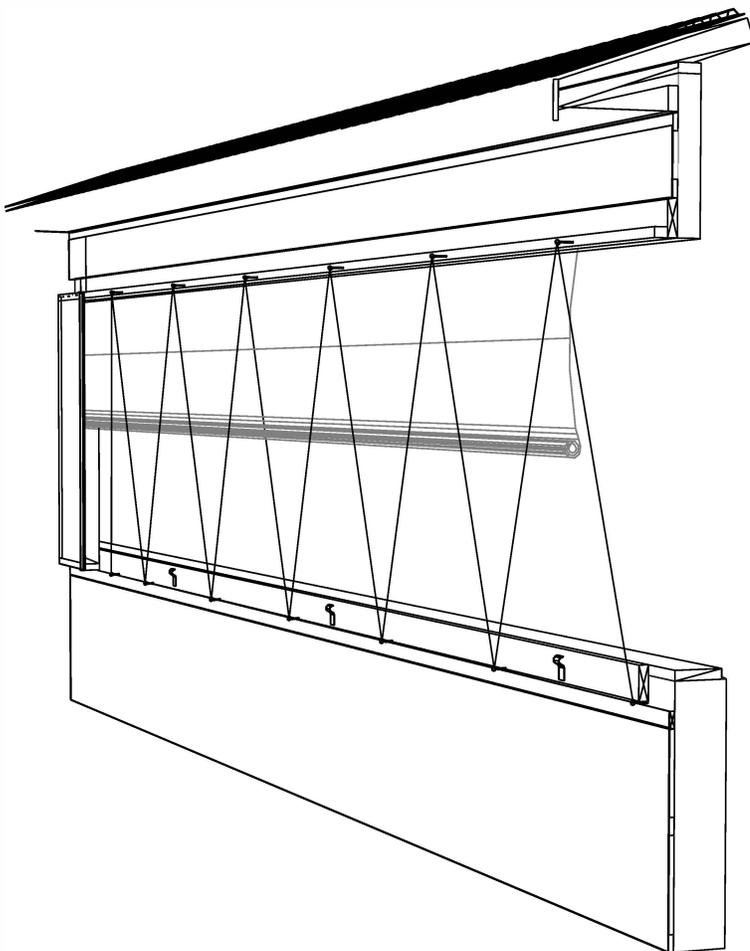
Before you start, have you checked the following?

1. Measure the length and height of the opening to be sure it corresponds to the size of the curtain ordered. See table (right).
2. For this application you will be required to install a 2x4 sill along the opening. This 2x4 will give you the operating space for the curtain to be rolled up.
3. Do you have a 2x4 min. header above the opening? You will also require 2x4 framing for your boot ends. Ensure that you have the required 2x4 lumber on site before starting the curtain installation.
4. Is birdscreen to be installed with your curtain? If required this must be installed prior to the installation of the header and sill framing. See the section detail below.

Tool List

- Electric or cordless drill
- Circular Saw
- 7/16" socket (required for 1/4" lag)
- Utility knife
- Common hand tools
- Hack Saw / Sawzall
- 7/8" socket (6 point)

Max Opening Height	Curtain
27"	SH33
39"	SH45
51"	SH57
63"	SH69
75"	SH81
87"	SH93
99"	SH105



Common Parts for SN009x2001-2007



SN022X4008:
Hex Lag Screw
Z 1/4 x 5



SN020X2253:
Curtain hold down clip



SN022x4210:
Roofing Nails Galv.
1-1/4



SN020X2009:
Nylon Rope #6



SN019X1200:
SH33 Poly Curtain
Boot Material



SN020X9102:
Galvalume tube 1" O.D.
x 20ft one end swaged



SN020X2270:
White plastic strip
7/8" wide x 8 ft.



SN020X0403:
Pan soc tek screw
Z 10 x 1/2



SN022X4120:
White 1" Wood Grips



SN022X0701:
S.A.E. Flatwashers
Zinc 1/4



SN020X2202:
Medium Lag Eye Bolt



SN022X4001:
Hex Lag Screws
Z 1/4 x 1 - 1/2



SN018X1010-6:
SH33-105 Single Hem
poly curtain



SN022X4003:
Hex Lag Screws
Z 1/4 x 2-1/2



SN020X2251:
Tarp clip for 1"
tubing



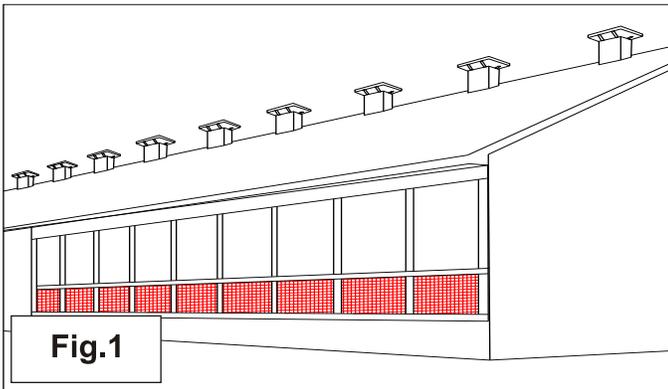
SN022X4006:
Hex Lag Screws
Z 1/4 x 4

Installing Your Roll-Up Curtains With Wind Rope

Follow the Step-by-Step Instructions:

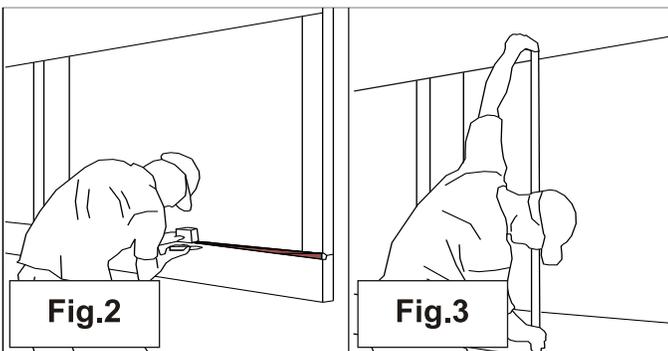
1. Take a look at the existing structure where you plan to install the new curtain:

Check the spacing of the structural columns along the entire opening of the barn. Note that birdscreen or livestock barrier should be installed prior to the Curtain installation if the project calls for this type of product. The image shown here has metal screen installed on the lower half of the opening as a livestock barrier. (Fig.1)



2. Rear boot fabric installation:

Both ends of the opening will require an end boot. The rear fabric of each end boot must be installed. Measure and mark 30" along the sill and header of the opening. (Fig.2)

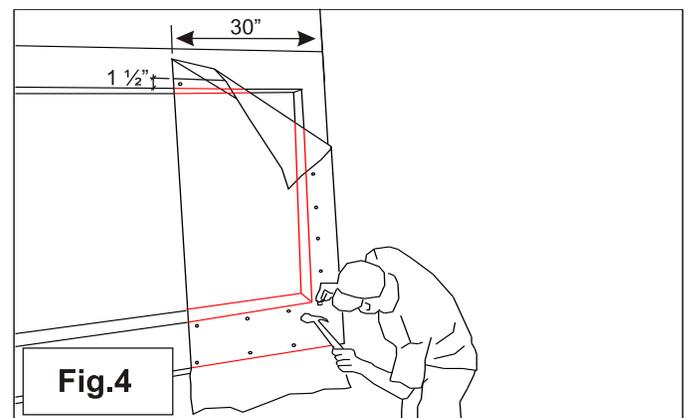


3. Measure and cut to size the rear boot material:

Measure from the top of the header frame to the lower edge of the sill frame. This is the maximum length of rear boot material that will be required. It is best to provide yourself with a little extra length and trim this off when finished. (Fig.3)

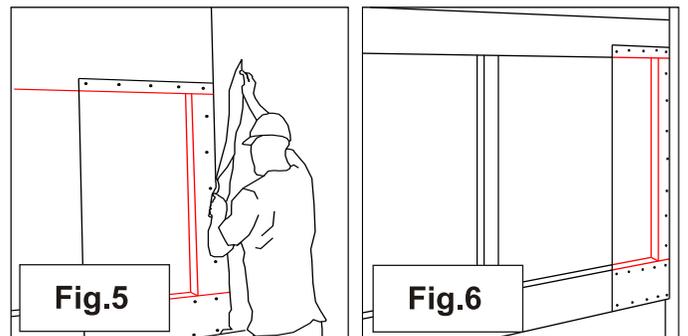
4. Tack the boot material up with roofing nails:

It is important to install the material as tight and wrinkle free as possible. Tack the top corner of the boot material at the bottom of the header 30" out from the end of the framing. Tack the material up in place using flat top roofing nails 6 to 8 inches on center. You will see that two rows of nails are used along the bottom sill. This is done so that the bottom of the inside boot material will not fill with debris. (Fig.4)



5. Trim off extra material:

Take a knife and trim off the extra length or width of material that extends beyond the header, sill and side framing of the opening. (Fig.5)



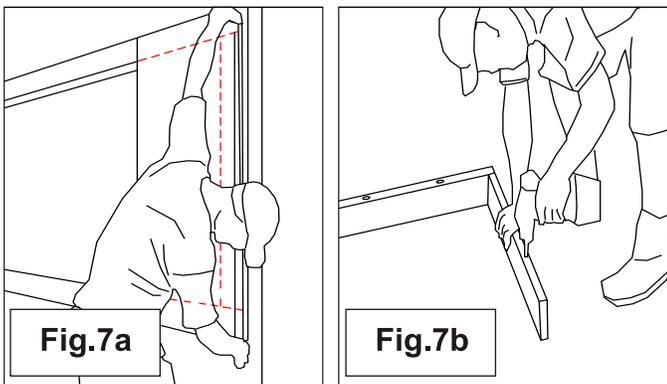
6. Both ends of the opening:

You should now have both ends of the wall opening capped with rear boot material as shown. (Fig.6)

Installing Your Roll-Up Curtains With Wind Rope

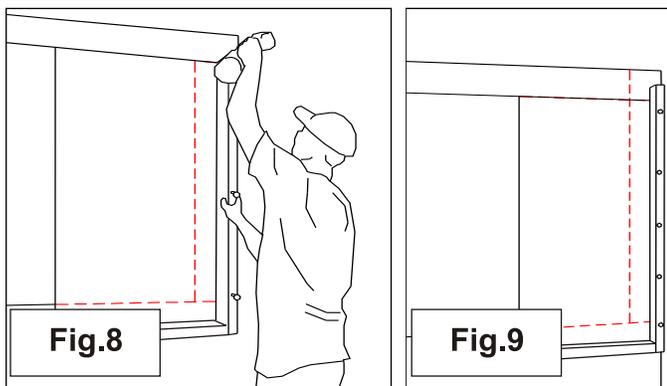
7. Measure and cut the required lengths of framing for the boot:

Measure from the bottom of the header to the bottom of the sill and add 1 ½". The measurement should equal the height of the rear boot material. Cut a 2x4 so that you have one piece at this measured length and one more piece cut to a length of 30", this is done for each end. This is required for the side and bottom of the boot to provide the depth required to clear the curtain and possible running gear. Pre-drill 5/16" holes approx 32" o.c. and place 5" lags with washers in these holes. These lags are what will hold the boot frame to the barn. (Fig.7a)(Fig.7b)



8. Install the boot frame:

Place the boot frame into position and drive the lags through the boot frame and into the perimeter frame. Keep the bottom of the boot flush with the lower edge of the sill framing and to the outside edge of the jamb framing. (Fig.8)

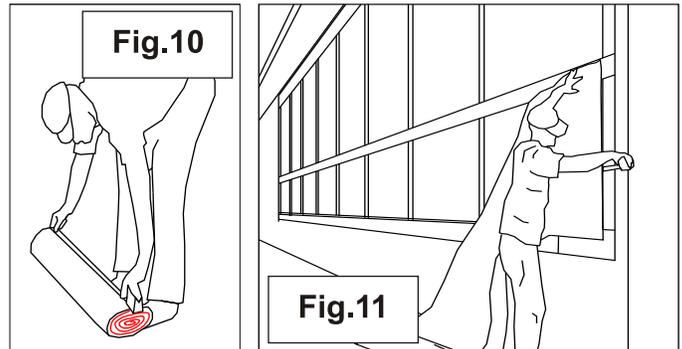


9. Boot frame:

You should now have a boot frame installed as shown. Each end of the opening along the barn must have this installed. (Fig.9)

10. Curtain material:

Measure the height of the opening and measure the curtain width to ensure it will cover the opening height plus a minimum of 5". Measure the overall length of the opening and select the curtain material sized for the opening. (Fig.10)

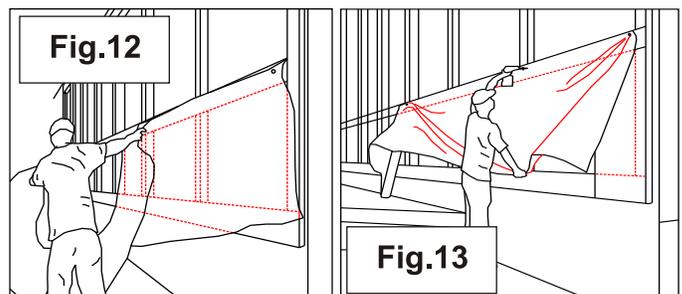


11. Install the curtain material:

Tack the top corner of the curtain material to the upper header using a wood-grip type screw, ensure that the curtain is touching the end boot framing and the lower hem is 3" on the bottom sill (stitching of the hem should line up with the upper edge of the sill face). (Fig.11)

12. Installing the curtain:

Walk down the opening of the structure the distance of 2 structural openings and tack the curtain again using another wood grip keeping it as tight and horizontal as possible. (Fig.12)



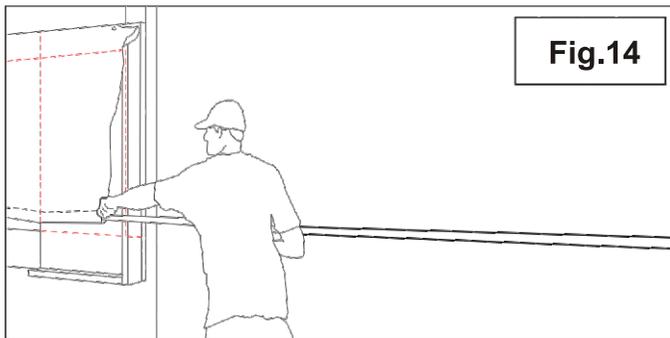
13. Installing the curtain:

Walk back along the opening and fasten the curtain at approximately 8'-0" on center or at every structural column as shown. Follow this same operation until the entire opening is covered with the curtain. Note: do not cut curtain yet. (Fig.13)

Installing Your Roll-Up Curtains With Wind Rope

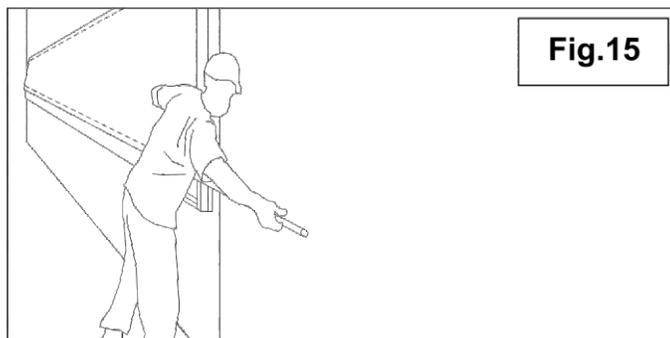
14. Installing pipe into the bottom hem:

Now that the curtain is hung into the opening of the structure, you can now feed or stuff the bottom pipe into the bottom hem of the curtain. Feed the first pipe into the bottom hem working from the "non-operating" end of the curtain (do not start from the end that requires a gear box). (Fig.14)



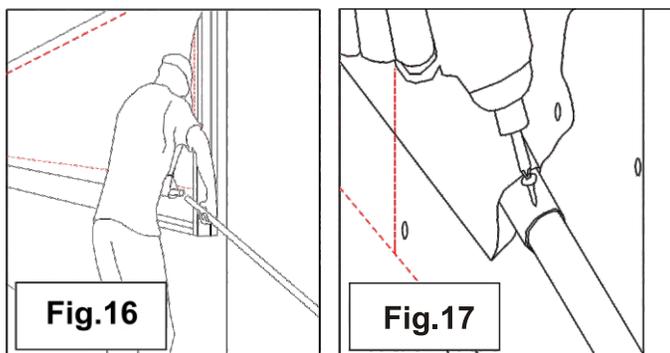
15. Installing pipe into the bottom hem:

Push the first pipe into the hem with approximately 12" still sticking out of the curtain. (Fig.15)



16. Installing pipe into the bottom hem:

Each pipe will have one swaged end to allow each pipe to connect with the next. Fit a second pipe over the swaged end of the first pipe. (Fig.16)

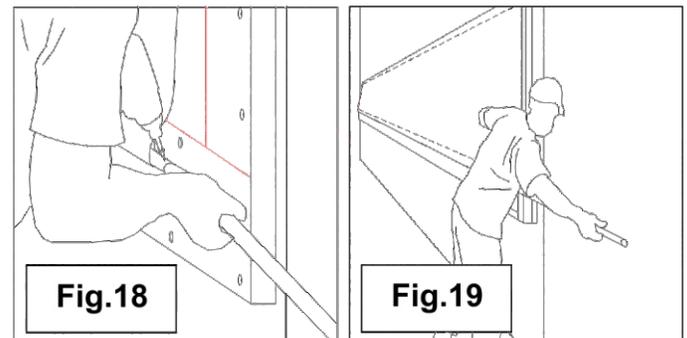


17. Installing pipe into the bottom hem:

Using a power tool and a #10 x 1/2 tec screw, permanently fasten both pipes together at the swaged connection. (Fig.17)

18. Installing pipe into the bottom hem:

Twist the pipe around 180 deg. and install a second tec screw in the same manner permanently fastening the pipe from both sides. (Fig.18)

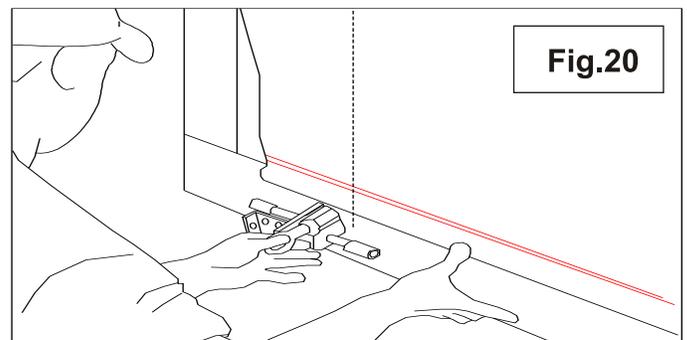


19. Installing pipe into the bottom hem:

Again, push the pipe into the hem and repeat until the hem is full of pipe. You will have extra pipe protruding from the curtain, leave this and walk down to the other end of the curtain (operator end of the curtain). (Fig.19)

20. Ensuring the correct length of pipe in the bottom hem:

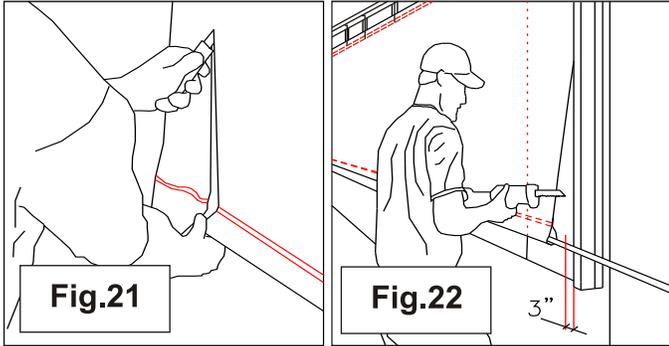
At the operator/gear box end, push the bottom curtain rod back/out from the side boot to allow clearance of the gear box operator. You should allow approx 6" of space from inside of framing to the end of the pipe. If you are unsure you can hold the gear box up to the curtain so that you have a better idea of the space to leave. Also see Fig.36 to Fig.39. (Fig.20)



Installing Your Roll-Up Curtains With Wind Rope

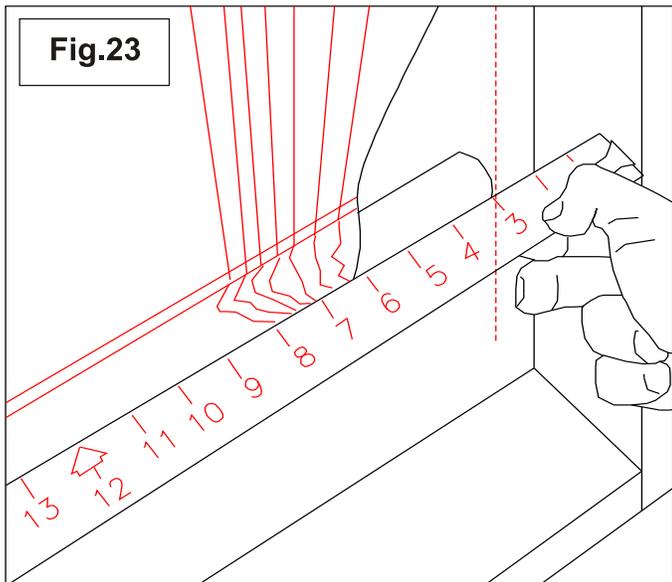
21. Installing pipe into the bottom hem:

The extra curtain material that is not required (above the area to where the gear box will be installed) can now be cut away (approx. 6" of curtain will be cut away up the length of the operating side). (Fig.21)



22. Installing pipe into the bottom hem:

Walk back to the other end of the curtain (to the non-operating end of the curtain). Push the curtain material back on the pipe and mark the pipe 3" in from the inside of the boot framing. You will now cut off the extra pipe at this mark removing the extra pipe that is left sticking out beyond the boot framing. Also see Fig.23. (Fig.22)

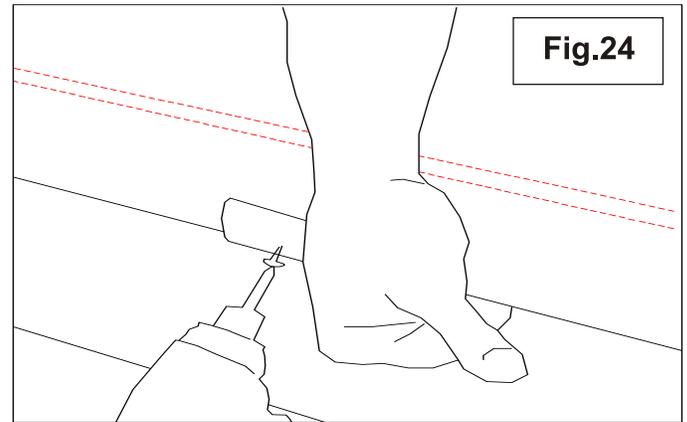


23. Installing pipe into the bottom hem:

With the pipe cut you will confirm that you have 3" of space between the end of the pipe and the end boot framing. Note: do not trim this end of the curtain at this time. (Fig.23)

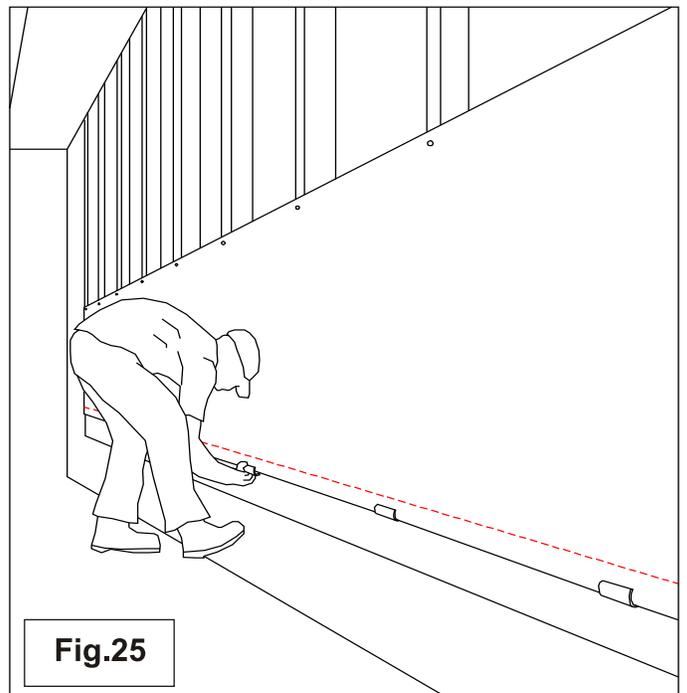
24. Installing tarp clips:

You now must install the tarp clips that will hold the curtain tight to the bottom pipe. A tarp clip near each end of the curtain is to be permanently fastened using a tec-screw as shown in this image. Ensure that the curtain is pulled tight into place when these are installed. (Fig.24)



25. Installing tarp clips:

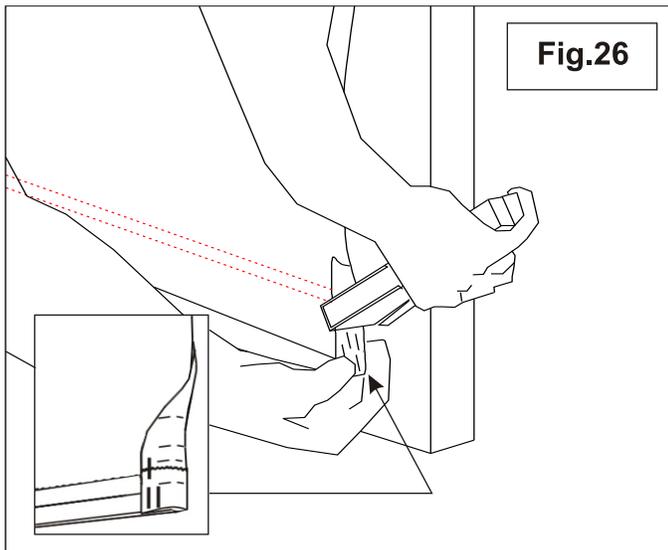
The remainder of the tarp clips can now be installed by simply snapping them over the bottom pipe. The clips are spaced approx. 8'-0" apart and ensure that these clips are all on at the same orientation (i.e. straight up from the bottom). Every other tarp clip can be permanently fastened with a #10x1/2" tek screw. (Fig.25)



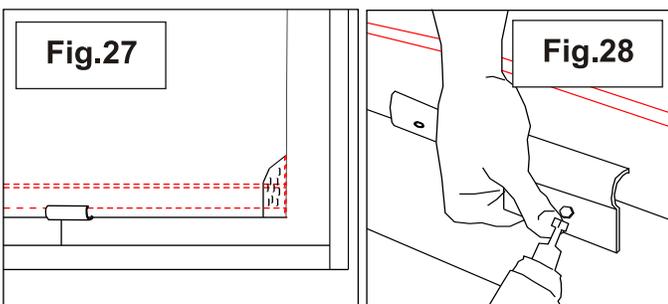
Installing Your Roll-Up Curtains With Wind Rope

26. Close the end of the curtain hem:

The non-operating end of the curtain can now be finished by cutting the material leaving a 3" flap on the hem extending past the pipe and fold over the extra material at the hem and staple it shut. Doing this helps to stop the movement of the curtain and will also stop the hem from pulling apart. Ensure that the hem has a minimum of 2 staples over the stitching and over the opening of the pipe pocket/end. At the other end, staple the stitching only using 2 staples. (Fig.26)



27. This image is showing how the end of the curtain should appear. (Fig.27)



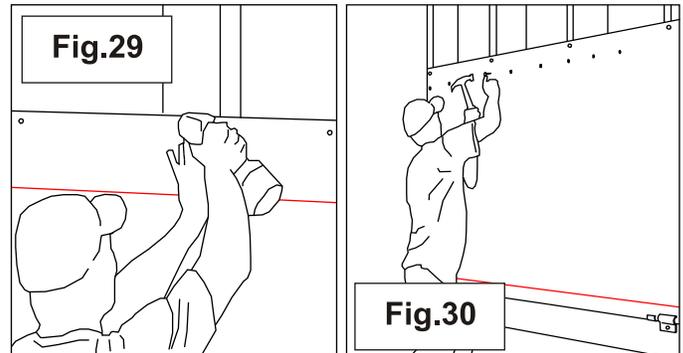
28. Installing the hold down clips:

A clip is installed 8'-0" o.c. using 1/4" x 1 1/2" wood lags along the sidewall opening. (Fig.28)

29. Adjusting the curtain keeping it tight and crease free:

It is important at this stage to make the curtain smooth and crease free. The wood grip screws

that are holding up the top of the curtain to the header can be backed out, the curtain can then be adjusted and wood grip put back in place. (Fig.29)

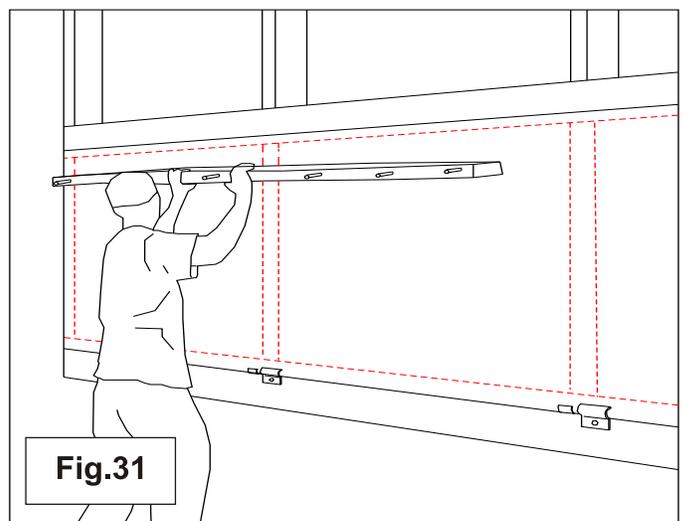


30. Fix top of curtain:

Now that you are happy how the curtain is hanging on the sidewall you are to permanently fasten the upper curtain to the opening. Taking roofing nails, you now hammer nails in at 8" o.c. along the header, 3/4" up from the bottom of the header. (Fig.30)

31. Installing the 2x4 upper sill plate:

First measure out the full length of the opening as you will need to know this for the installation of a continuous upper 2x4 sill plate. You will be required to pre-drill holes @ 24" o.c. into the edge of each length of upper sill plate. With each upper 2x4 pre-drilled place lag screws and washers into each hole. One person is now able to hold the upper sill at its mid point and fasten it at the correct position on the barn opening. You must ensure that the bottom of the 2x4 sill is flush with the bottom of the header. (Fig.31)



Installing Your Roll-Up Curtains With Wind Rope

32. Installing the 2x4 upper sill plate:

Ensure that the upper sill plate is installed level over the entire opening of the barn.

The upper sill plate will complete the framing of the end boots as it will cap the top of the boot framing. (Fig.32)

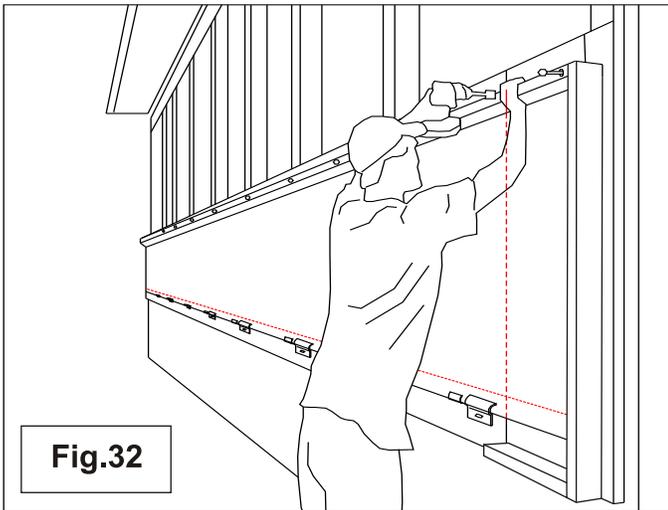


Fig.32

33. Remove the extra curtain material:

Take a sharp knife and cut along the top edge of the upper sill plate so that the extra curtain material can be removed. (Fig.33)

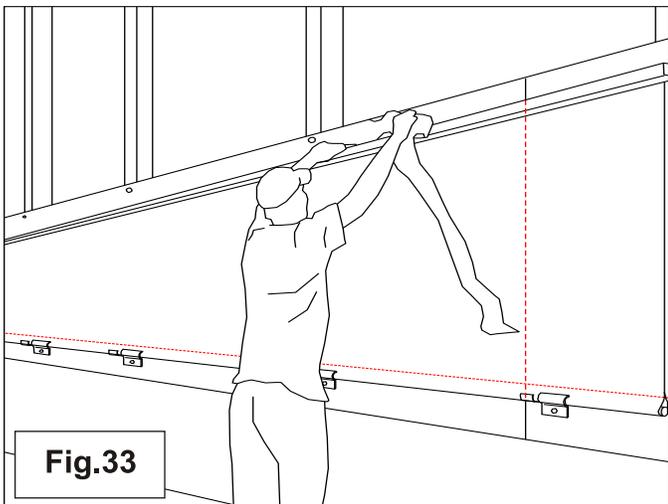


Fig.33

34. & 35. Remove the wood grip screws:

The wood grips screws can now be removed freeing up the extra curtain material. Gather up the loose curtain material and discard. (Fig.34)(Fig.35)

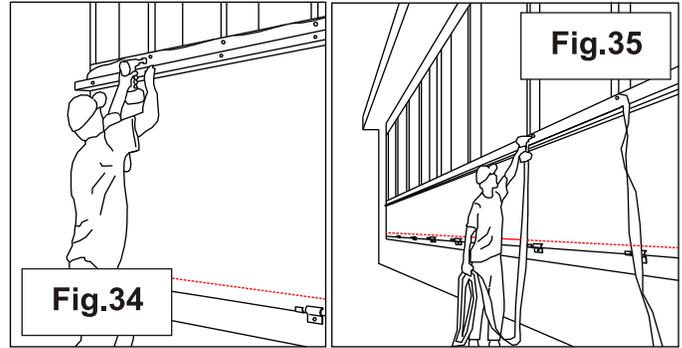


Fig.34

Fig.35

36. Gearbox angle adjustment:

The angle of the gearbox can be adjusted on its mounting to enable smooth operation at different heights on the sidewall. The higher the curtain is on the sidewall the gearbox must be adjusted to compensate to allow operation. (10mm wrench may be required) (Fig.36)

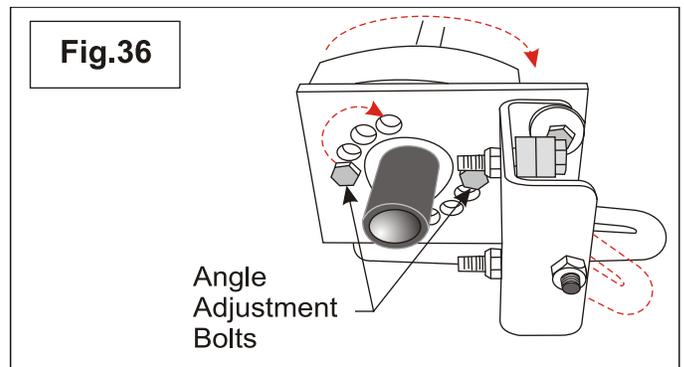


Fig.36

Angle
Adjustment
Bolts

37. Gearbox installation:

It is important to ensure that the gearbox has room to move along the boot framing and that the pipe installed in the bottom hem is the correct length. Line up the gearbox so that it will have 1" clearance from the side framing and measure the distance to where the pilot hole is on the gearbox drive shaft. (Fig.37)

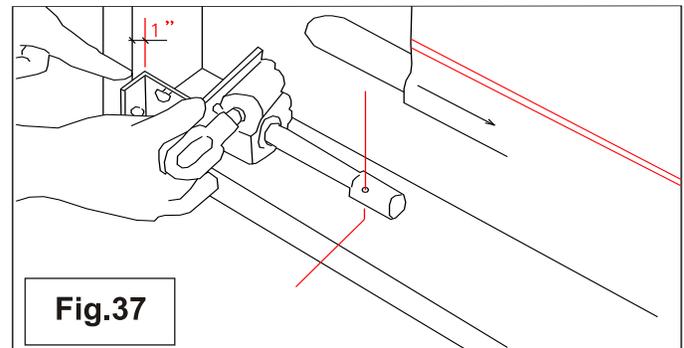
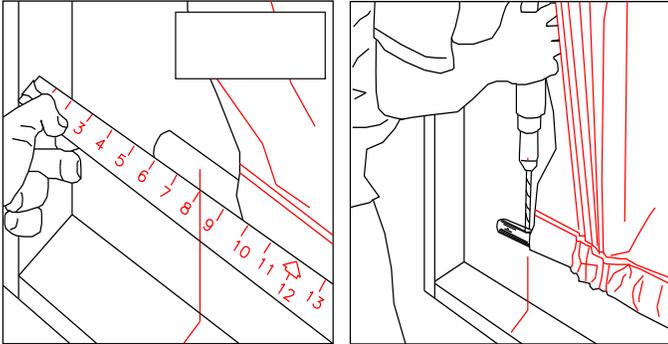


Fig.37

Installing Your Roll-Up Curtains With Wind Rope

38. Gearbox installation:

Mark the bottom hem pipe where the gearbox pilot hole is. (Fig.38)

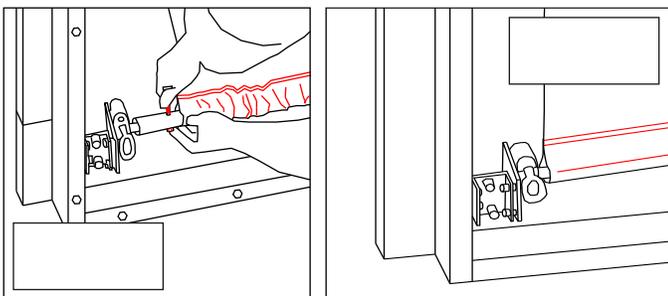


39. Gearbox installation:

You will now drill a 1/4" hole through the bottom pipe on the mark that you have made. You may have to push the material back along the pipe to gain access to the proper amount of pipe. (Fig.39)

40. Gearbox installation

Feed the gearbox into the bottom pipe and install the 1/4" x 1 1/4" carriage bolt through the hole that you drilled in the pipe. The bolt should pass through the hole in the pipe, through the gear box shaft and out through the bottom of the pipe. Install the lock nut on the bolt and then push the material back along the pipe. (Fig.40)

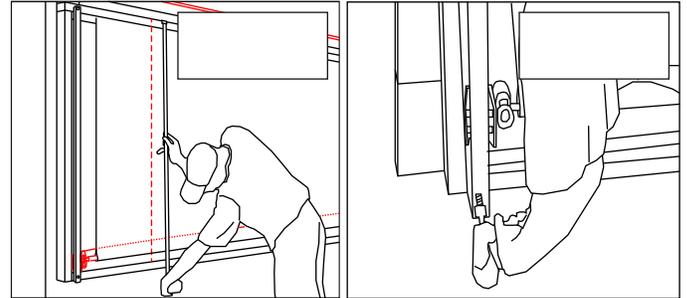


41. The gearbox is now installed and should look as shown:

Note: the angle of the hoop/handle on the gearbox can be adjusted so that binding will not occur during operation at higher locations from grade level. The angle is adjusted by removing the mounting plate, rotating and reinstalling the bolts in the alternative holes. Also see Fig.36. (Fig.41)

42. Installing the gearbox track:

Measure the overall height of the boot frame as this is the dimension you will use to cut the correct length of gearbox track. Pre-drill a 1/4" hole in both ends of the track 3/4" in from the end (used to mount the track to the framing). (Fig.42)

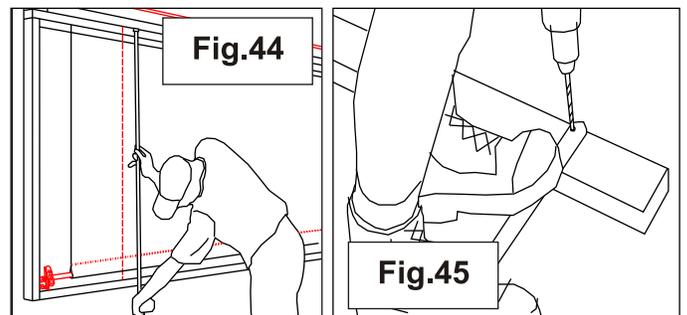


43. Installing the gearbox track:

Feed the track into the wheel of the car body (this is part of the gearbox assembly). Mount the track vertically/plumb with a 3" lag at both ends. (Fig.43)

44. Finishing the end boots:

Again, measure the full framed opening from top of the top sill frame to the bottom. You will use the measurement to cut a length of pipe that will be used to support the boot material for each end. (Fig.44)



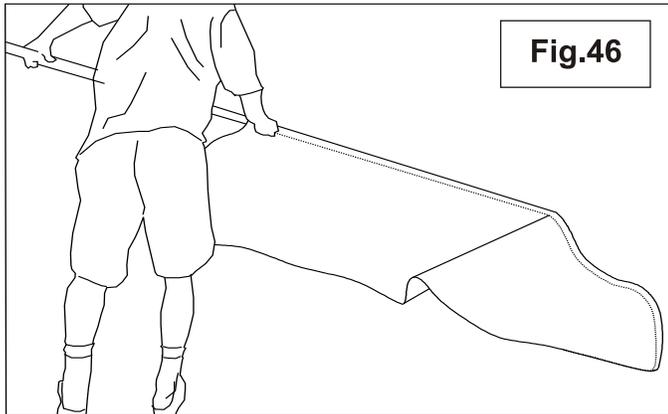
45. Finishing the End Boots:

Pre-drill a 1/4" hole at each end of this boot pipe 3/4" from the ends. (Fig.45)

Installing Your Roll-Up Curtains With Wind Rope

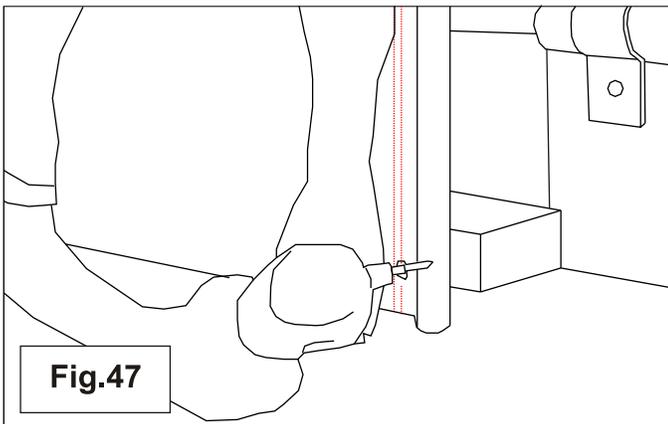
46. Finishing the end boots:

Cut boot material 6" longer than the boot pipe and then feed the boot pipe into the hem side of the boot material. (Fig.46)



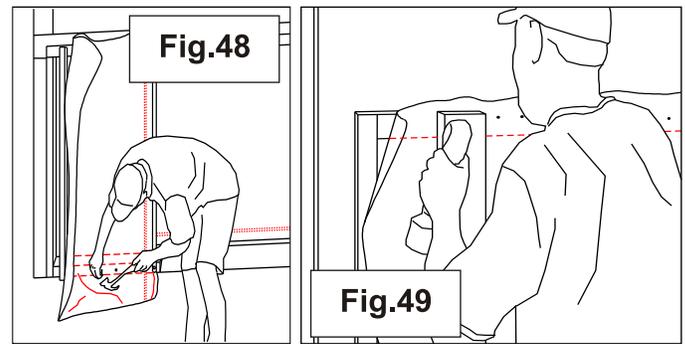
47. Finishing the end boots:

Place the boot material and pipe at the open end of the boot framing so that it is 1 1/2" from the end of the wood boot or flush with the back boot and drive a 2 1/2" lag in the top and bottom pre-drilled holes of the boot pipe. (Fig.47)



48. Installing boot material:

It is important to keep the boot material pulled tight and without any creases. While pulling the boot material, tack the material along the top and bottom edge of the boot framing using roofing nails. You must leave the gearbox side of the boot material free as the next thing you will do is install the side blocking that provided a finished opening to the gearbox. (Fig.48)

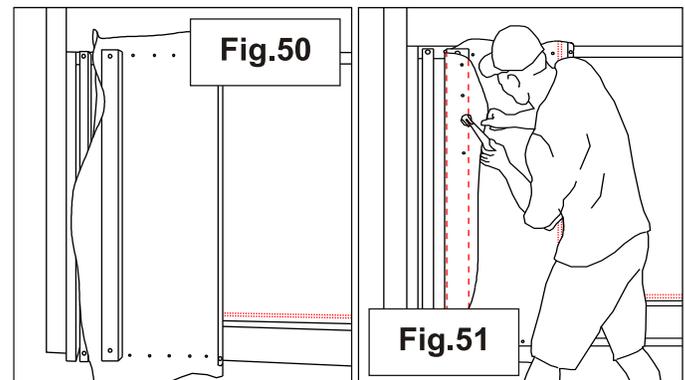


49. Installing boot material:

Using the same measurement that you cut the boot pipe in figure 44, cut a 2x4 to the same length. You will now place the 2x4 vertically over the boot framing on top of the boot material. This 2x4 should be placed 3" away from the gearbox track to ensure its free movement. Lag the 2x4 at the top and bottom fastening into the boot framing. (Fig.49)

50. Installing boot material:

Your end boot should now look like this. (Fig.50)



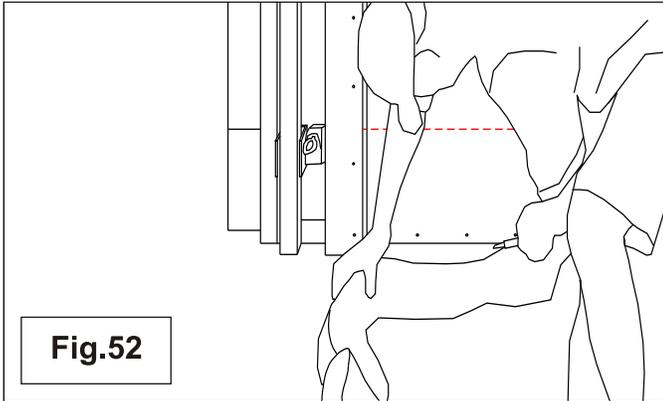
51. Installing boot material:

You will now wrap the boot material over the 2x4 vertical and fasten the material with the same roofing nails keeping the material tight and free from creases. (Fig.51)

Installing Your Roll-Up Curtains With Wind Rope

52. Installing boot material:

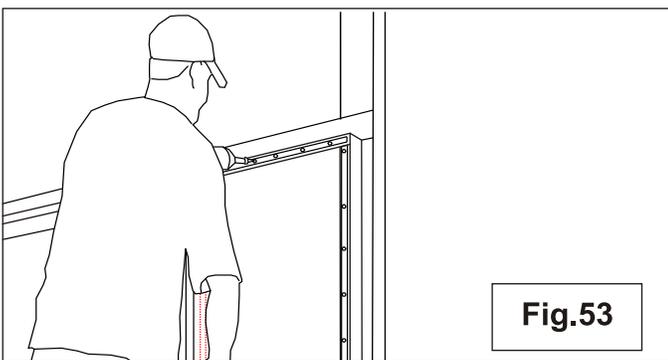
The extra material that extends beyond the boot framing must now be trimmed off using a sharp utility knife. (Fig.52)



53. Finishing the Boot:

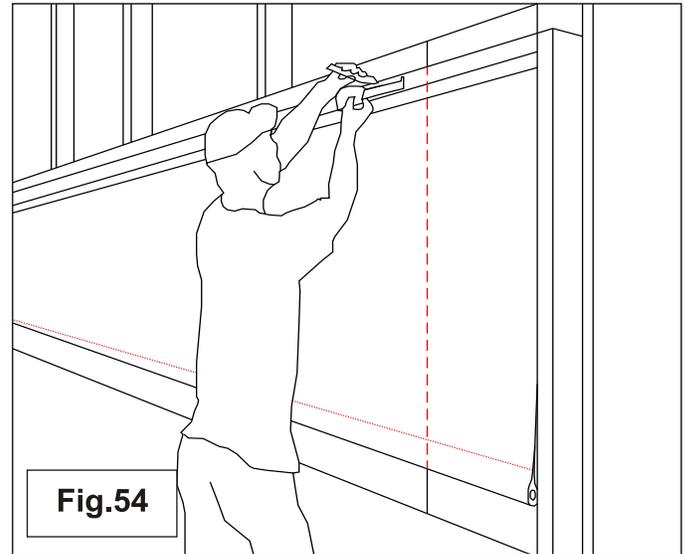
Puck board strips are now cut to length and installed over the roofing nails using wood grip screws at 8" o.c.. Ensure to keep tension on the plastic strip as it is being installed. This will give extra support for the material and will also provide a very nice clean look to the boot. (Fig.53)

Note: the boot at the other end can be finished using a similar procedure but the extra vertical 2x4 that divides the space up for the gearbox is not required. Simply fix the boot material to the vertical member of the boot framing.



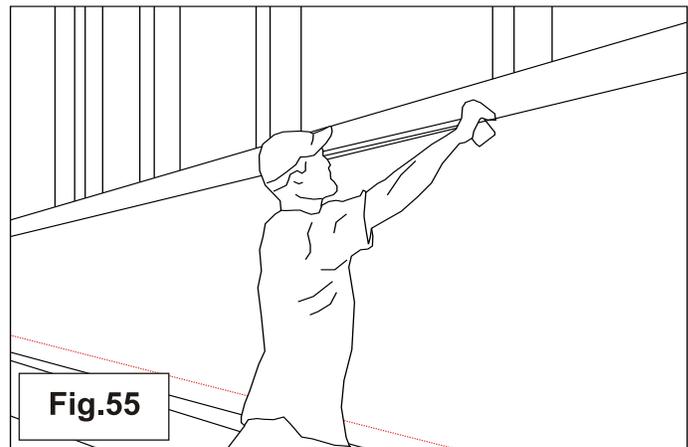
54. Wind rope:

You must now layout out the locations of the wind rope hooks/eye screws at 48" o.c. along the top sill on the front face of the 2x4, starting from the edge of the finished boot, measure the first location of 12" into the opening. This will be as close as you will want your wind rope to come to the boot. (Fig.54)



55. Wind rope:

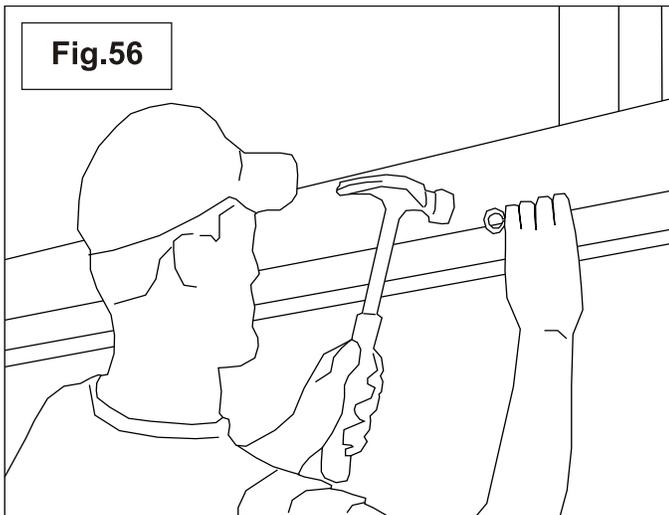
This sample barn has support/side columns at 8'-0" o.c. Along the top sill/opening we will need a hook/eye screw at every column and another mid way through the opening (i.e. every 48" o.c.). Our installers will travel along the sidewall opening and scribe a mark using a tape measure, measuring the locations of each hook/eye screw as shown. (Fig.55)



Installing Your Roll-Up Curtains With Wind Rope

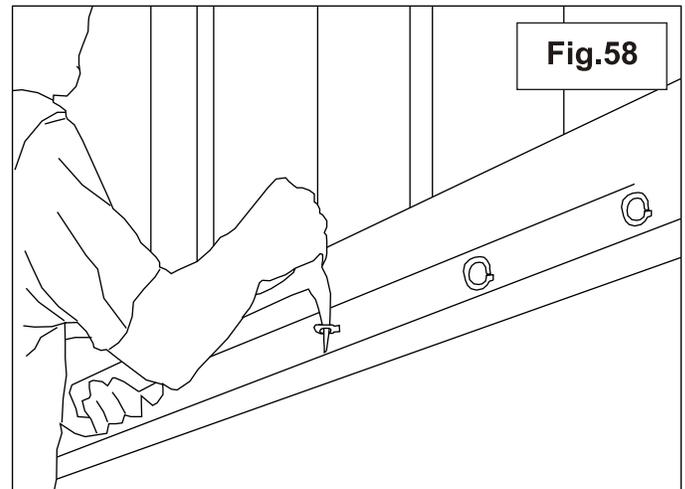
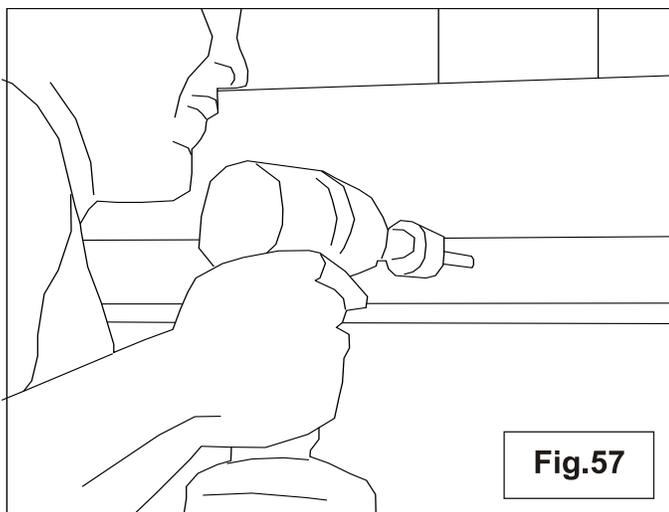
56. Wind rope:

At each scribe mark a hook/eye screw will be started by hammering it into the upper 2x4 sill as shown. Note: The same installation of hook/eye screws must be performed on the lower sill plate/header with the exception that the placement must be offset by $\frac{1}{2}$ " the distance from that of the upper hook/eye screws and below the curtain and pipe. See Fig.67 for a sample of how these eye screws are offset from the upper sill to the lower sill. (Fig.56)



57. Wind rope:

To make the process of installing the hook/eye screws quick and easy we use a cordless impact driver with a end socket that will accept the eye screw. Each eye screw is driven down into the framing approximately $\frac{1}{2}$ the shank length. (Fig.57)



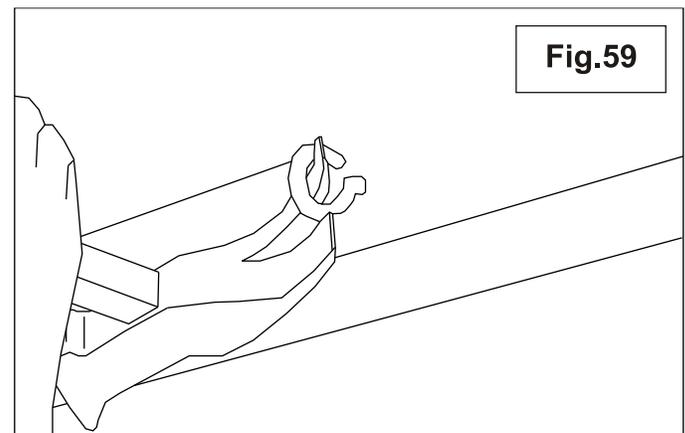
58. Wind rope:

Each hook/eye screw must be turned vertically on the upper and lower sill/headers. (Fig.58)

59. Wind rope:

The hook/eye screw along the upper sill/header framing must now be opened using your hammer/claw. This is done to allow easy threading of the wind rope. (Fig.59)

Note: this is required of the upper sill/header only.



Installing Your Roll-Up Curtains With Wind Rope

60. Wind rope:

A spool of rope is set up at one end of the sidewall opening. You must now feed a continuous run of rope through the bottom eye screws. (Fig.60)

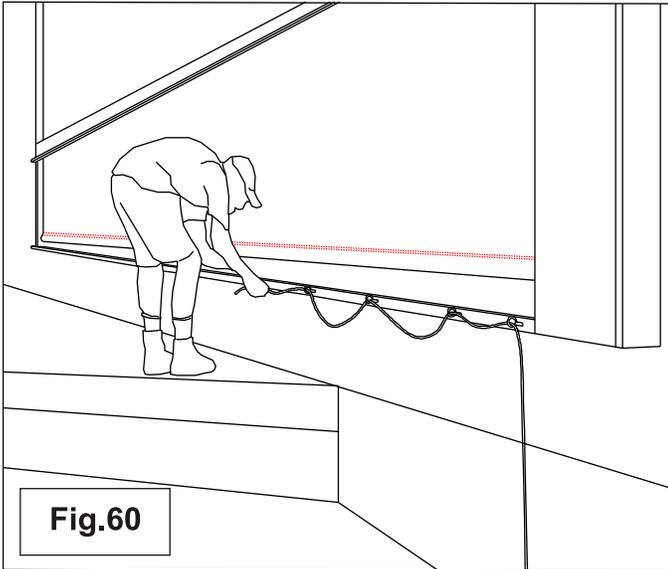


Fig.60

61. Wind rope:

This rope must be free of knots and be free to move through the bottom eye screws. (Fig.61)

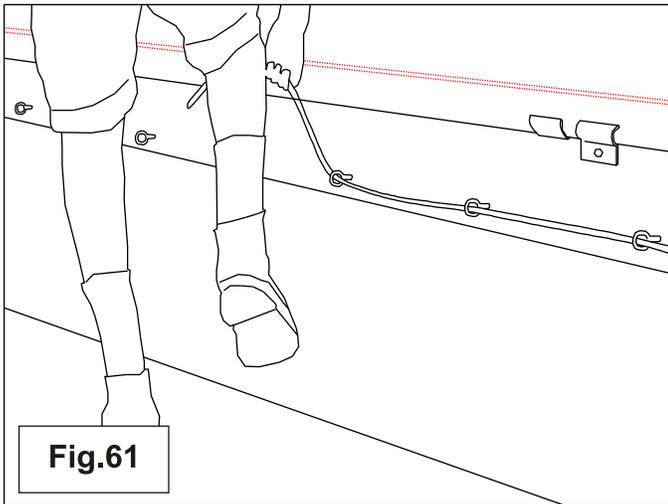


Fig.61

62. Wind rope:

At the second last eye screw you must run the rope up to the upper sill/header through the last upper eye screw/hook and then down to the last lower eye screw. The rope is then tied off at the lower last eye screw. It is also important to provide an

extra bit of rope length when you tie it off at this point as it may be required to be untied and tightened in the future. (Fig.62)

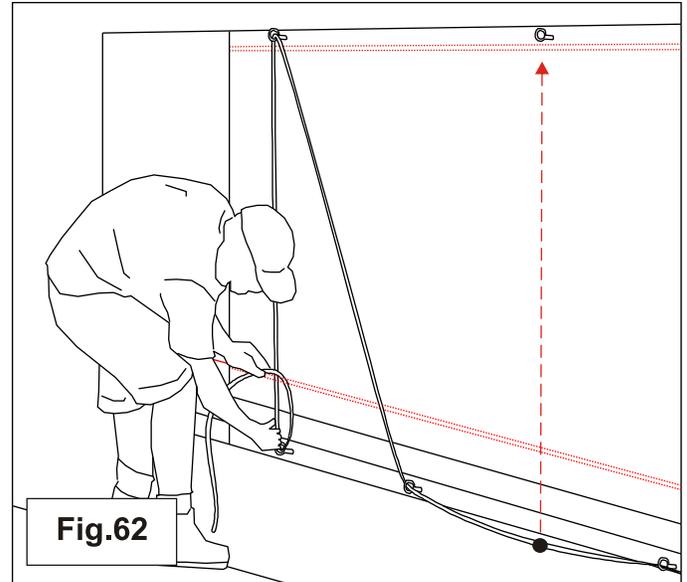


Fig.62

63. Wind rope:

With the upper eye screws open similar to a hook, it is now possible to lift the rope between each lower eye screw up to each upper eye screw working back from the fixed end producing a zig zag pattern in front of the curtain material as shown. It is important to keep the rope as tight as possible over the entire opening. Return back to the tied end and re-tension the rope along the opening until even tension is obtained. (Fig.63)

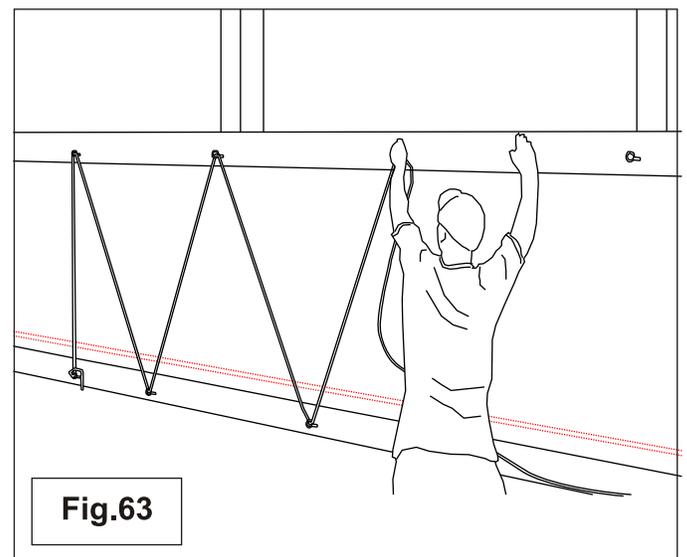
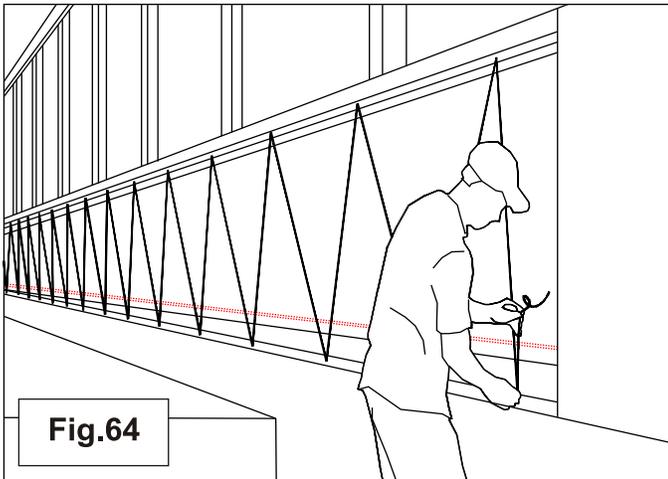


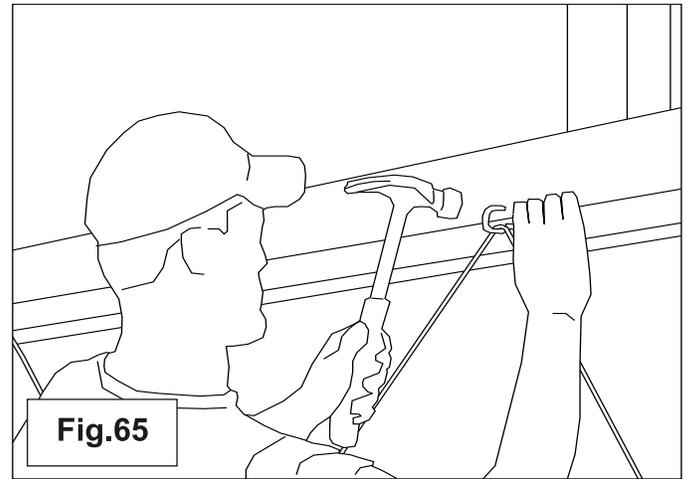
Fig.63

Installing Your Roll-Up Curtains With Wind Rope



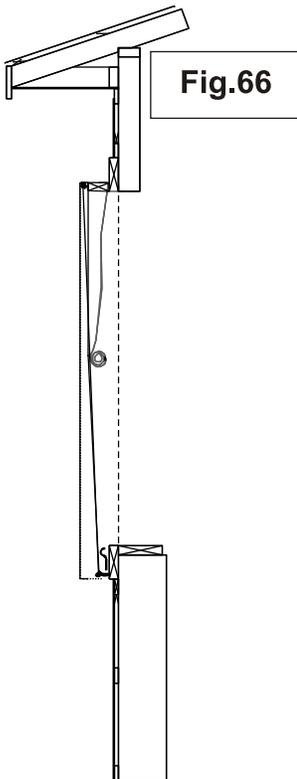
64. Wind rope:

When you come to the end of the opening or edge of the end boot, the rope is now tied off leaving a small length of rope that will allow it to be untied and re-tightened if the rope stretches or becomes slack. (Fig.64)



65. Wind rope:

The upper eye screws/hook can now be closed using your hammer. Tap them closed so that the rope will be sure to stay in place. (Fig.65)



66. Wind rope:

This figure is provided so that you can see what the assembly may look like in section. (Fig.66)

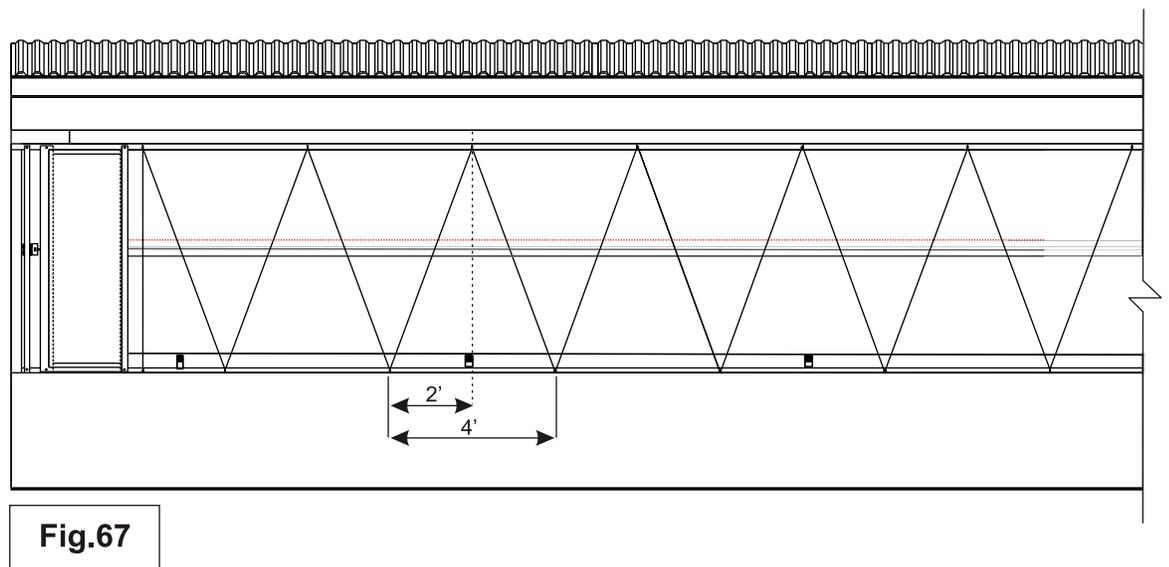


Fig.67

67. Wind rope:

This elevation detail is showing the completed assembly with the curtain partially rolled up using the gearbox. We have noted sample spacing of the wind rope and layout so that it is easily understood. (Fig.67)



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