



# BARRY B-NET SYSTEM

*Technical Specifications and Installation Guidelines*

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Revision 5  
December 2017

This document contains 20 pages

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***IMPORTANT: Make sure this user instructions manual is the latest version available.  
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important updates and other notices.***

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## Congratulations on your purchase of a Barry Quality Safety Product !

Our philosophy at Barry is to offer only best quality in products. We hope that you will be completely satisfied with this product and wish to thank you for choosing Barry. We invite you to send in your comments to help us to continue improving our products and services.



## Revision history

Revision	Sections affected	Changes	Date
1	4.2	Figure 6 notes updated	Sept. 2010
2	Title, 2 and 4.3	Warning added, revision history added, figure 1 updated, technical specifications updated, connection system revised	Aug. 2011
3	2, 4.5	Technical specifications updated	Oct. 2015
4	All	Several important revisions and warnings added, diagrams, tables, technical specifications updated and modified	Nov. 2017
5	4.2, 4.5 and 4.6	Notes on base of nets and support poles removed or modified	Dec. 2017

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## 1. Introduction

No safety system is complete without detailed use and installation guidelines from the manufacturer of such systems. B-Net system are safety equipment and should be treated as such at all times with the same regards as with any other type of safety equipment. The following pages define typical installation scenarios which are to be validated and installed in the field by qualified and trained personnel.

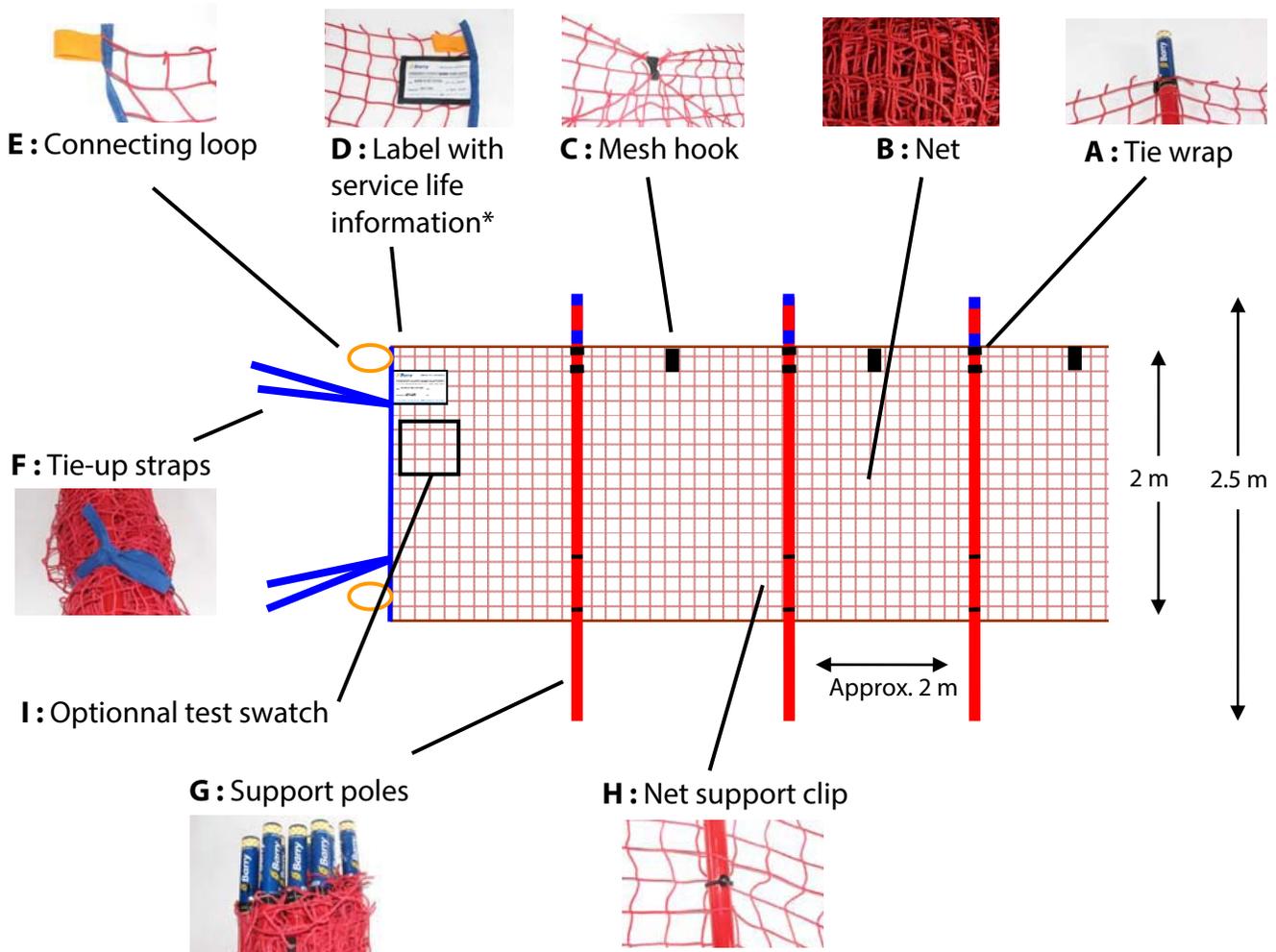
Alpine ski racing and training is an extremely dangerous activity for which no system can completely remove the risk of injury or death, even if industry best practices and installation guidelines are strictly adhered to. Personnel responsible for installation must remain vigilant and execute with diligence when undertaking the task of securing a training or racing course. Notwithstanding their best efforts, there shall always remain the risk and possibility that, through some very unfortunate mishap, a skier will be injured or killed as not every possible condition or scenario can be absolutely mitigated.

Significant accidents resulting in paraplegia and death of skiers during racing and training events have highlighted the need for increased attention to proper installation and also for increasing the amount of safety measures used. Advances in skier ability, speed and techniques must be matched with commensurate advances in the understanding of the mechanics which are deployed to protect the racers in the event of a fall.

Race Course Homologations only address the minimum requirements and location for the installation of safety materials. One cannot rely on these minimum requirements alone to determine whether a course is adequately or sufficiently secured. Additional compensatory measures (such as increasing numbers of rows of netting, adding A-nets, air fences, cushioning materials, etc.) are frequently required to account for specific on-site field conditions, skier ability, level, expected speed, etc. Additionally, training or racing done on courses which have not been homologated may create situations for which adequate safety measures have not been properly evaluated and planned for. These should be reviewed and analysed by a qualified authority.

Safety should not be considered to be materials only. It is only through the combination of using well assembled safety nets (which are not out-dated or mis-assembled), establishing properly designed courses (as wide as possible) and sometimes possibly reducing skier velocity (via course set or even cancelling the event altogether) that a course will be deemed as appropriately safe.

## 2. Technical specifications



**Fig. 1:** Section of a 20 meter Barry B-Net System (2017)  
(not to scale)

\* **D: Label example**

		1.800.305.2673 • www.barry.ca
<b>ÉVÉNEMENTS SPORTIFS BARRY SPORT EVENTS</b>		
<small>Suivre les instructions du "Guide d'Installation Barry" / Follow the instructions of the "Barry Installation Guidelines"</small>		
Type	<b>BARRY B-NET SYSTEM</b>	Dimensions <b>2m x 20m</b>
Date fab./mfg	<b>2017/18</b>	Lot _____
<small>NE PAS UTILISER CE FILET APRÈS 2023 SAUF SI AUTORISÉ PAR ÉCRIT PAR BARRY. METTRE HORS SERVICE ET DÉTRUIRE AVANT CETTE DATE SI NÉCESSAIRE. RÉFÉREZ-VOUS AU GUIDE D'INSTALLATION BARRY POUR LES CRITÈRES D'INSPECTION ET DE MISE AU REBUT.</small>		<small>DO NOT USE THIS NET AFTER 2023 UNLESS WRITTEN APPROVAL FROM BARRY IS OBTAINED. RETIRE BEFORE THIS DATE AS NECESSARY. REFER TO BARRY INSTALLATION GUIDELINES FOR INSPECTION AND RETIREMENT CRITERIA.</small>
<b>FABRIQUÉ AU CANADA</b>  <b>MADE IN CANADA</b>		

**A: Tie wrap**

**Quantity:** 2 per support pole

**Properties:** UV resistance, high strength

**Features:** Low profile and may be replaced at low cost

**B: Net**

**Dimensions:** Approx. 2 m x 20 m;  
Approx. 65 mm square mesh

**Weight:** Approx. 15-20 kg

**Properties:** UV resistance

**C: Mesh hook**

**Features:** used to raise and support installed nets during course maintenance

**D: Label**

**Quantity:** 2 per net (at each end)

**Property:** Cold resistance

**Features:**

- Lot number
- Manufacturing date (year)
- Do not use after date  
(5 years from manufacturing year)

**E: Connecting loop**

**Feature:** Top and bottom loops used to join nets together

**F: Tie-up straps**

**Features:** Tie-up straps at each end for ease of roll-up (can be removed during installation) - can be color coded on special order.

**G: Support poles**

**Material:** Polycarbonate (PC)

**Dimensions:** Approx. 2.5 m (H)

**Quantity:** 9 poles/20 m section

**Properties:** UV and impact resistance

**Features:** Factory assembled to net-top end cap

**H: Net support clip**

**Features:** can be replaced at low cost

**I: Optional test swatch**

**Features:** Can be installed on order for testing of residual strength used for inventory monitoring of service life of netting

**Note:** Barry has a policy of continuous improvement and reserves the right to update product or components without prior notice.

### 3. Before use

**These installation guidelines apply exclusively to factory assembled Barry B-Net Systems. Use of individual components outside of factory assembled Barry B-Net Systems, and/or any substitution or modification of any components may cause serious injury or death and voids product warranty.**

Alpine skiing is a potentially dangerous sport and the Barry B-Net System should be installed in conformity with these installation guidelines. Installation (in whole or in part) made outside of these installation guidelines must be made under the supervision of a qualified authority (see below). The efficacy of the Barry B-Net System may be seriously compromised if any of the basic requirements are modified. Any installation of safety net systems should be documented and conducted under the supervision of a qualified authority, who will be responsible for the entire period that the safety nets are installed and used and who shall provide ongoing instructions for personnel for any required adjustments to be made.

Barry recommends that Barry B-Net Systems be installed during training and with the same standard of care and concern as would be given during a race. Risk of a skier fall may be greater during training as more runs are performed and often new equipment and techniques are tested during training and speed may be greater.

#### 3.1 Training

**Important:** Installation situations which are not described in these pages are to be resolved and corrected by a qualified authority.

The installation of Barry B-Net Systems must only be carried out by personnel who have received and reviewed all of the information contained in the current version of this document. The electronic version found on the Barry website is the only valid version as product updates or changes may be done from time to time without prior notification.

**Authorized person:** means a person approved or assigned by the Race Organizing Committee or other entity to perform a specific type of duty or duties at a specific location on the race or training course.

**Competent person:** means one who is capable of identifying existing and predictable hazards in the surroundings or training or race conditions which are unsafe, hazardous and/or dangerous to the skiers or personnel in the vicinity of the event, and who has authorization to take prompt corrective measures to eliminate them.

**Qualified authority:** means one, who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his/her ability to solve or resolve problems relating to the subject matter, the work, or the project.

All installation scenarios should be documented and include a list of the personnel who participated in the installation.

### 3.2 Design premise

The installation scenarios illustrated herein are based on observations of an 80 kg mass travelling at a maximum speed of 60 km/hr and/or at a maximum speed of 100km/hr, impacting the net/support pole system sideways. Direct impacts (whether head first or sideways) into the net system, without prior sliding of the skier on the snow surface, may cause the skier to ramp up, flip or be ejected and may result in serious injury or even death. Typical use is during alpine ski racing or training, on courses which are wide (40 m +) and which are homologated for slalom or giant slalom and where the minimum distance from a turning gate to the first row of netting is 6 m.

Installation scenarios which fall outside the above design premise are to be determined by the on-site qualified authority and may require that appropriate compensatory measures be taken.

### 3.3 Preparation

Step 1: Inspect equipment before use (see Appendix A). Do not use if you have any doubts about the installation of this product or if you suspect that the materials may be damaged or unfit for use, or has exceeded its service life.

Step 2: Identify potential obstacles to the trail (snow gun, trees, tower, etc.). Both sides of the entire race course should be protected by Barry B-Net Systems for all training and race events as the skier's probable spill zones may not be accurately predicted. In addition, where appropriate, follow the safety recommendations provided in the course homologation report and add nets or other protection means to account for speed, mass and skier ability as determined by a qualified authority.

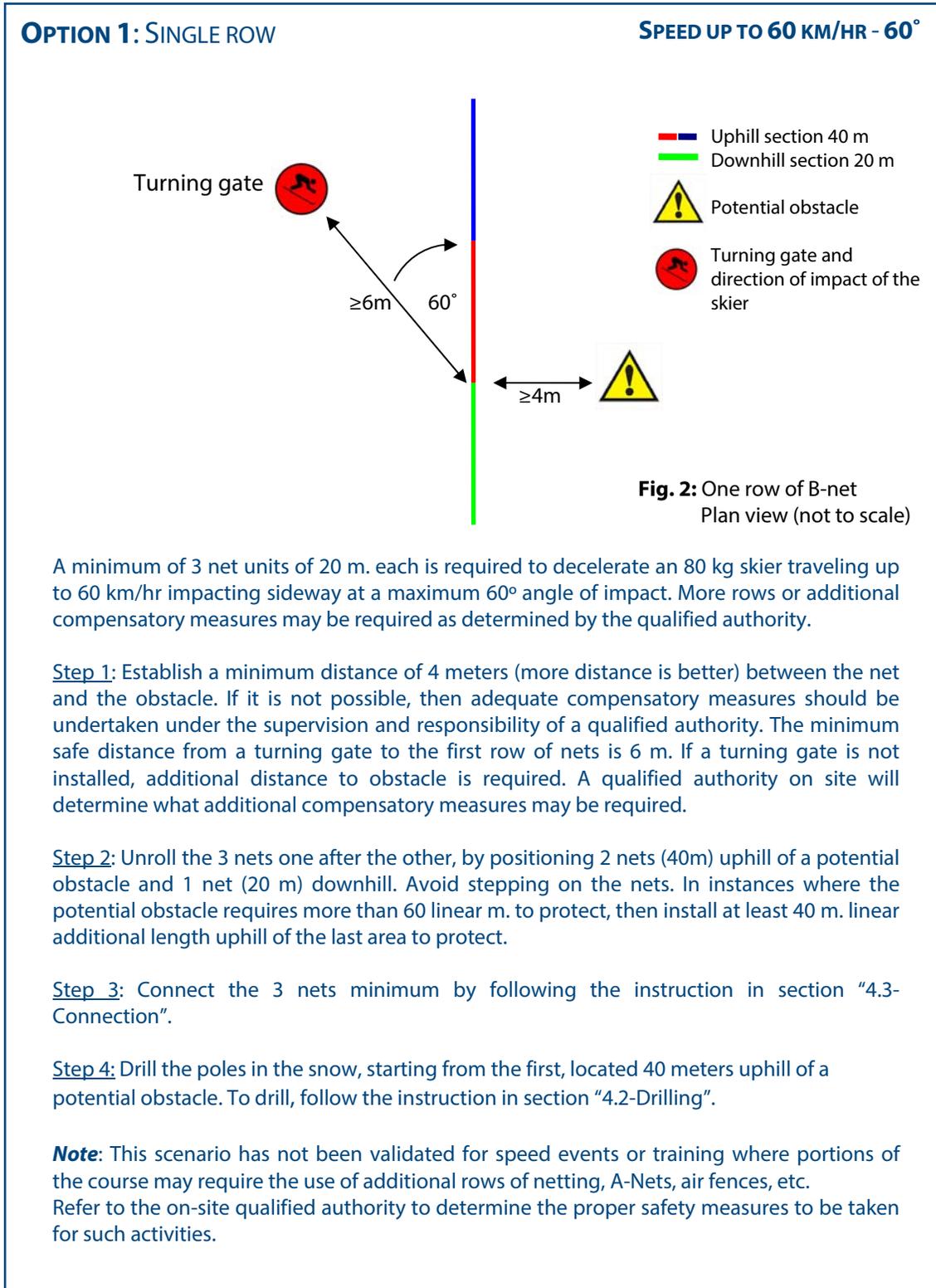
### 3.4 Types of configuration

The installation configurations provided herein serve as basic guidelines which have been found to be effective under certain conditions. Other configurations are also possible and should be implemented under the supervision of a qualified authority. The installation configuration is done further to evaluation and analysis by the qualified authority of several factors such as the expected speed and level of the skier, the angle of impact between the potential fall of the skier and the obstacle, etc. Barry recommends to always have spare components or systems readily available for repair in case of loss, damage or if needed to increase safety if conditions change.

<b>Speed</b> <b>Angle</b>	<b>up to 60 km/hr</b>	<b>up to 100 km/hr</b>
<b>60°</b>	<b>Option 1:</b> one row of net or more -3 net units of 20m each	<b>Option 2:</b> two rows of net or more -6 net units of 20 m each
<b>90°</b>	<b>Option 3:</b> " S " layering -1 net unit of 20m or more -2 additional poles	<b>Option 4:</b> Double " S " layering -2 net units of 20m each or more -4 additional poles

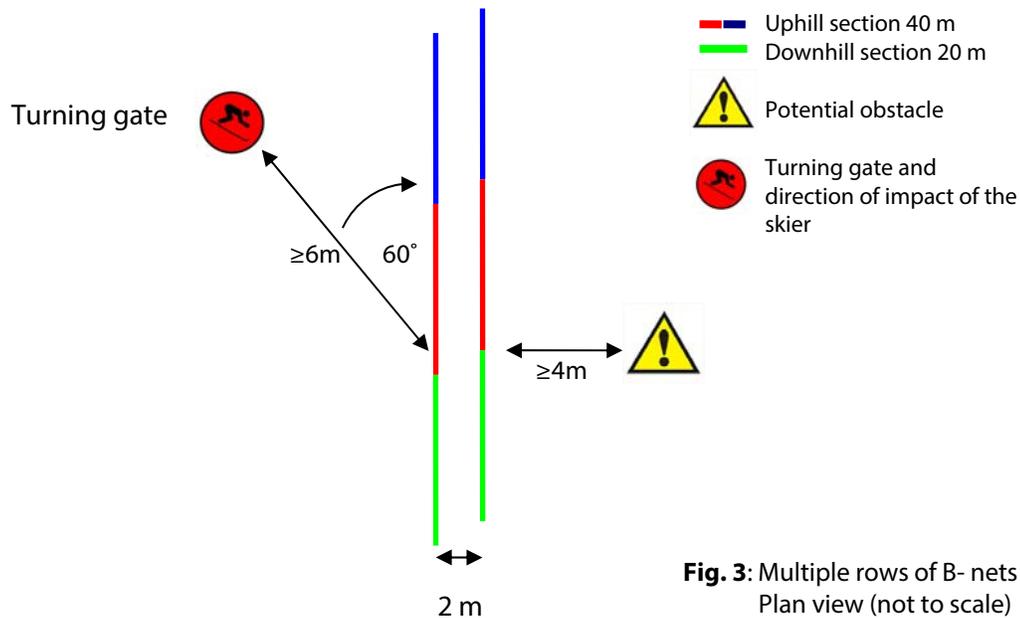
## 4. Installation

### 4.1 Installing the configuration



## OPTION 2: MULTIPLE ROWS

SPEED UP TO 100 KM/HR - 60°



**Fig. 3:** Multiple rows of B- nets  
Plan view (not to scale)

A minimum of 2 rows of 3 net units of 20 m. each is required to decelerate an 80 kg skier traveling up to 100 km/hr impacting sideways at a maximum 60° angle of impact. More rows or additional compensatory measures may be required as determined by the qualified authority.

Install the first row of net following steps 1 through 4 of the previous page for single row.

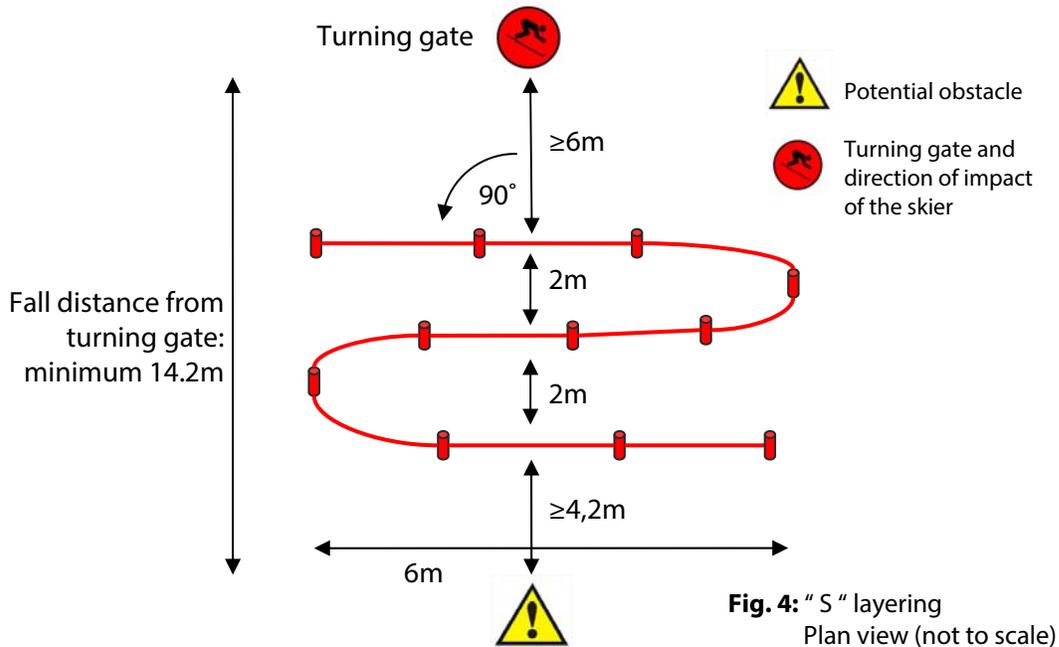
Step 5: Install a second row of nets parallel to the first net following same instructions. The distance between the two nets should be 2 m and the first net must be at least 4 m from the obstacle (more distance is better). Do not align joints of net sections in the same direction of impact of the skier.

**Note:** It has been observed that adding an additional third row at 0.5 m in front of the middle row can be effective to increase system performance in certain situations. Such installation is to be determined by the qualified authority.

**Note:** This scenario has not been validated for speed events or training where portions of the course may require the use of additional rows of netting, A-Nets, air fences, etc. Refer to the on-site qualified authority to determine the proper safety measures to be taken for such activities.

### OPTION 3 : " S " LAYERING

SPEED UP TO 60 KM/HR - 90°



This configuration may be considered to decelerate an 80 kg mass travelling at maximum 60 km/hr, with a 90° angle of impact. More rows or additional compensatory measures may be required as determined by the qualified authority.

**Step 1:** For this arrangement, a one 20 meters net and 11 support poles (two extra poles) are required. To install the additional support poles, refer to the " 4.4-Replacing support poles " section.

**Step 2:** Ensure that there is at least 6 m between the turning gate and the potential obstacle. The minimum distance between the net and the obstacle is increased to 4.2 m (more distance is better). Every effort should be made to increase the distance to 5 m or 6 m where possible. The spacing between each row of net must be a minimum of 2 m. Distance between turning gate and first row of net must be at least 6m. If there is no turning gate or if the 2 m net spacing is not practical, the qualified authority on site will determine what appropriate compensatory measures are to be taken.

**Step 3:** Place the net to obtain an " S ", as shown on figure 4.

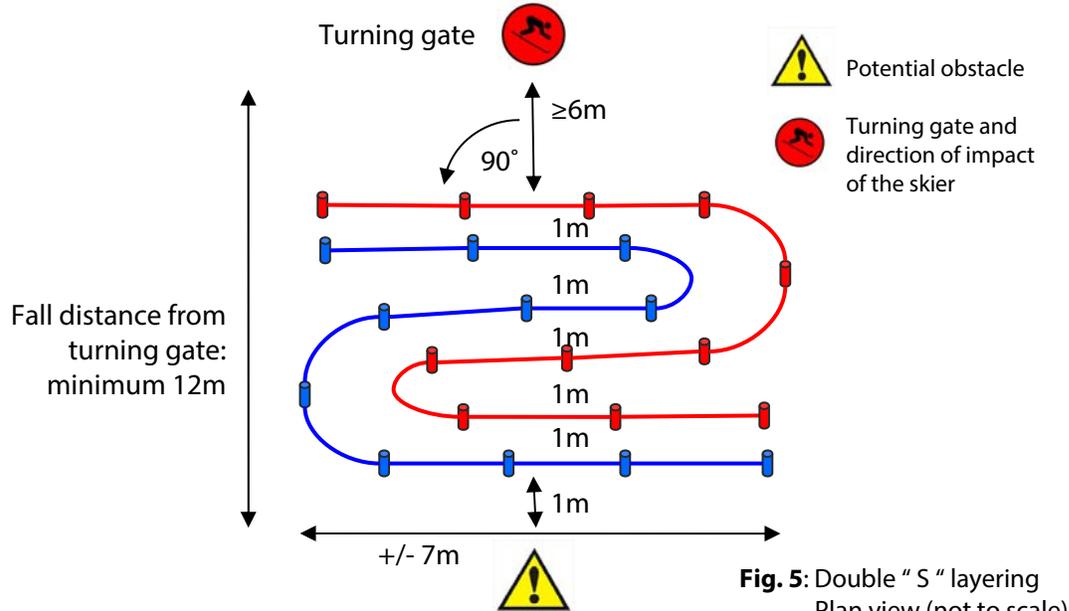
**Step 4:** Drill the poles in the snow following the instruction in section "4.2- Drilling".

**Note:** Increasing the number of rows of nets may assist in reducing the distance between the turning gate and the obstacle (see option 4-Double " S " Layering).

**Note:** This scenario has not been validated for speed events or training where portions of the course may require the use of additional rows of netting, A-Nets, air fences, etc. Refer to the on-site qualified authority to determine the proper safety measures to be taken for such activities.

#### OPTION 4 : DOUBLE " S " LAYERING

SPEED UP TO 100 KM/HR - 90°



This set-up was observed to decelerate a falling 80 kg skier travelling at 100 km/hr within a 1 m distance from the obstacle with a 90° angle of impact. More rows or additional compensatory measures may be required as determined by the qualified authority.

Step 1: This arrangement requires using two (2) 20 meters nets and 22 support poles (4 extra poles). To install the additional support poles, refer to the "4.4-Replacing support poles" section.

Step 2: Ensure that there is at least 6 m between the turning gate and the first row of nets. Distance between the last row of net and the obstacle must be at least 1 m (more distance is better). In the case where the 1 m spacing between rows is not possible, the interval between each row of nets can be 0.5 m to 1 m, additional measures may be required to protect the potential obstacle. This requirement shall be determined by the qualified authority on site.

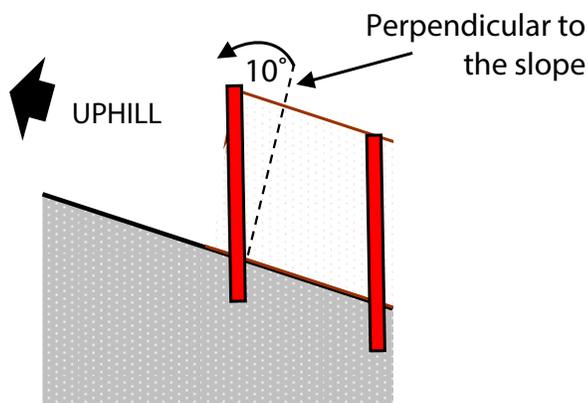
Step 3: Place the net to obtain a double " S ", as shown on figure 5.

Step 4: Drill the poles in the snow following the instruction in section "4.2- Drilling".

**Note:** This scenario has not been validated for speed events or training where portions of the course may require the use of additional rows of netting, A-Nets, air fences, etc. Refer to the on-site qualified authority to determine the proper safety measures to be taken for such activities.

## 4.2 Drilling

### DRILLING



**Fig. 6:** Drill poles at slight angle, incline towards uphill (not to scale)

Step 1: Incline the drill to get a slight (approx.  $10^\circ$ ) angle with poles pointing toward uphill. These inclines are calculated in relation to an imaginary line running perpendicular to the slope. All poles should be set in parallel and poles should not point downhill.

Step 2: Drill a hole (30 to 35 cm depth and 32mm diameter) in snow with a density range of 400-630  $\text{kg}/\text{m}^3$ .

**WARNING:** If the snow depth or density is insufficient to provide sound anchorage of the support poles, do not use these systems.

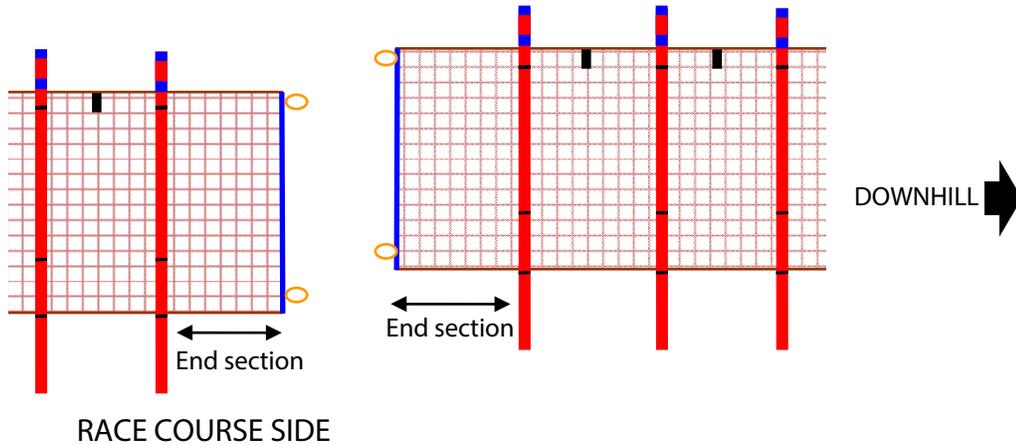
Step 3: Distance the support poles in order to obtain a net surface which is not overly tight or overly loose.

**Netting which is hung too tightly or too loose may not catch the skier who may ramp up, flip out or slide under and be subjected to serious injury or even death.**

### 4.3 Connection

#### CONNECTION SYSTEM

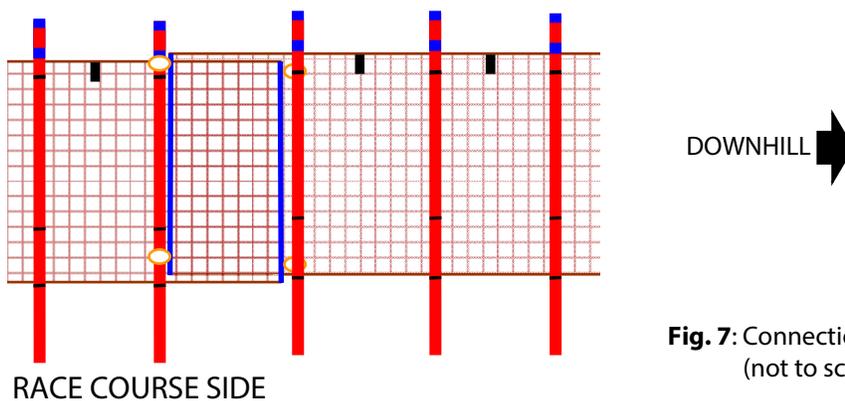
**Barry B-Net** Systems have a connection system with connecting loops on each end of the net.



Step 1: Unroll the nets and overlay an end section. Ensure that the up-hill net is on race course side.

Step 2: **Insert support poles through the top and bottom connecting loop of both nets to be connected. Make sure that the loop or stitching is not damaged.**

Step 3: Drill into the snow the two supports poles (ref. 4.2 Drilling).

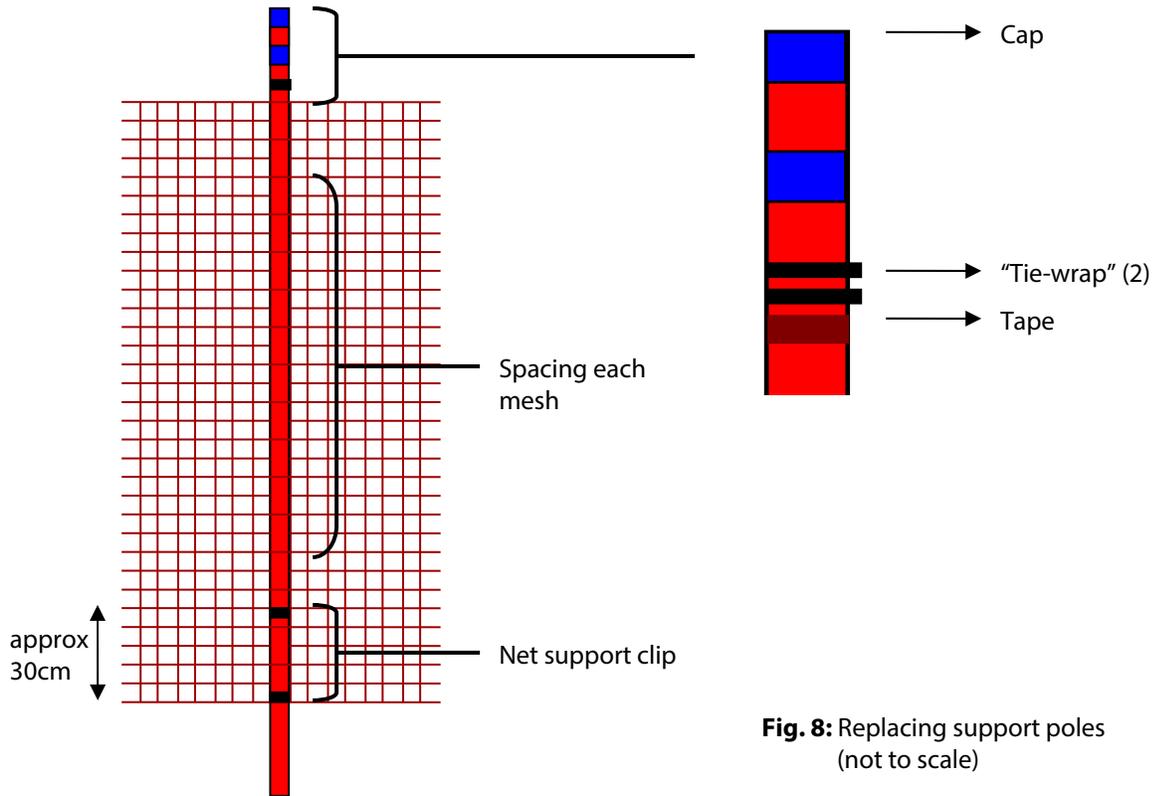


**Fig. 7:** Connection  
(not to scale)

## 4.4 Replacing support poles

Feed the pole through each mesh of net using the same line of meshes.

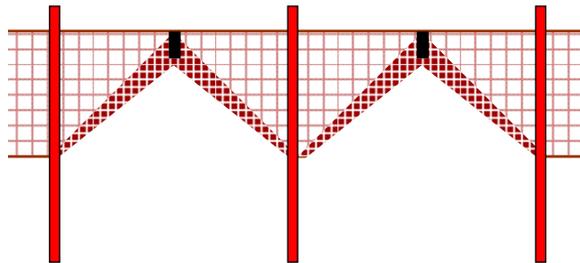
Only use the Barry tie wrap and appropriate tightening tool for repair. Do not use substitute products, bamboo, or slalom gate, etc. as replacement parts.



**Fig. 8:** Replacing support poles (not to scale)

## 4.5 Using the mesh hook

The mesh hook is inserted into a mesh of the upper section of the net between support poles. Insert meshes of the bottom section into the hook. These hooks serve to raise and support installed net during course maintenance.



**Fig. 9:** Use of the mesh hook (not to scale)

## 4.6 Verification and validation

The validation step is very important and is to be carried out by qualified authority or by competent persons prior to the use of the systems. Inspect carefully the following to confirm that the systems are ready to be used.

Stopping distance: The distance between the rows of nets and obstacles must be at minimum as per the distances established. All efforts should be made to increase this distance whenever it is possible. Ideally a 5-6 meters minimum distance is preferred. Each additional meter provides an increased factor of safety.

Base of Nets and Support Poles: The base of the nets should skirt over the snow surface and drape towards the race course side. There should be no gaps between the bottom of the net and the snow surface. The base of nets and the support poles should not be buried under and/or frozen in the snow or ice.

Net tension: Netting should hang not too tight or too loose.

Assembly: The uphill net must be on the race course side. All connecting loops must be well assembled.

During the period of time from initial deployment of the system, throughout the duration of the race or training event, continuously monitor the system and ensure to account for varying conditions such as snow accumulation/ablation, snow density, and impact from skiers, etc.

Constant re-evaluation and making the necessary adjustments and/ or repairs as detailed herein, is essential to account for these variations.

## **5. After use**

### **5.1 Inspection**

The inspection of Barry B-Net Systems must be carried out before and after each use (in accordance with Appendix A) by personnel who have received and reviewed the information contained in the present document. Maintain an updated logbook of the frequency of use and inspections of this product.

### **5.2 Roll-up of nets**

Step 1: Remove snow/ice from nets

Step 2: Align net to be re-wound in a straight line. Position the net so that one of the ID labels will face the exterior of the net.

Step 3: Tie-off using webbing straps supplied on the net edge. Alternately, users may prefer to attach the corners by feeding through the poles (top and bottom) without the use of the tie straps.

Step 4: Place the nets in the appropriate transport/storage cradles.

### **5.3 Storage**

Nets should be stored clean, dry and out of direct sunlight, and away from extreme heat and in a well-ventilated storage area. Nets should be kept off the floor and stored upright, on racks, to provide ventilation underneath. It is better to store the nets vertically to allow drainage and prevent contact of the fiber with the ground. Never store directly on a concrete, metal or dirt floor, and under no circumstances should nets and/ or acid and/ or alkalis be kept in the same building. Product life will be shortened by chemical and corrosive products or excessive temperatures.

## 6. Service life and warranty

The service life is based on the condition that documented regular inspections (prior to and after each use) do not reveal a condition for retirement. The actual service life depends on several factors, such as (but not limited to); intensity and frequency of use, environmental, storage and maintenance conditions, etc. An exceptional circumstance may limit the product lifetime to a single use.

A Barry B-Net system which was not formally inspected (with documented results) at least once per year should be removed from service and replaced, unless otherwise stated in writing by Barry after inspection.

Service life ends 5 years after the date of manufacture as indicated on the product label.

**Note:** A Barry B-Net system may be used for a period longer than 5 years subject to certain conditions, such as annual recertification and inspection results, and if written approval by Barry is obtained.

Optional test swatches can be installed at time of ordering to facilitate netting residual break strength testing.

Products made by Barry are warranted against factory defects in workmanship and materials for period of one (1) year from date of shipment. Upon notice in writing Barry will promptly repair or replace all defective items. Barry reserves the right to elect to have the defective item returned to its plant for inspection before making a repair or replacement. The cost of transport to deliver the product to and from Barry shall be covered by the purchaser.

Warranty does not cover product damages resulting from abuse, damage in transit, normal wear and tear, product modifications or repairs without the use of Barry original replacement parts, or other damages beyond the control of Barry. The warranty applies only to original purchaser and is the only one applicable to our products and is in lieu of all other warranties expressed or implied. Purchaser must provide valid and complete inspection and maintenance logs for the equipment for the warranty to be valid.

Notwithstanding this, and even if the installation guidelines are followed as per the present document, Barry makes no representation and provides no warranty, legal, contractual or otherwise, express or implied, with respect to the Barry B-Net Systems or components. More specifically, but without limiting the generality of the foregoing, Barry makes no representation respecting the suitability or fitness of this product for any particular purpose. Use of the Barry B-Net System is subject to the Barry Terms and Conditions (available at: <https://www.barry.ca/termsandconditions>).

## Appendix

### A. Inspection and maintenance log

Each net system is identified with a manufacturing year and lot number and a Do Not Use after Date.

The use, inspection and maintenance log should be kept by persons responsible for the inventory of the net systems in accordance with this document. An example of an Inspection and Maintenance log is found in the following pages. Completed copies of Inspection and Maintenance logs are required if further inspections are to be performed by Barry.

Some problems which can be identified during the system inspection are:

<b>Problem</b>	<b>Action to be taken</b>
Broken, missing or damaged connection loop	Identify location on the net using flagging tape, remove net from service and contact Barry for instructions
Broken or damaged net border or mesh (0 cm to 30 cm)	Identify location on the net using flagging tape, remove net from service and contact Barry for instructions
Major tear of net border or mesh (30 cm +)	Return complete net system to Barry for inspection, repair or replacement
Broken or damaged pole or clip or tie wrap	Replace with new Barry product per instructions found in Barry Installation Guidelines
Missing tie-up strap	Use an adequate substitute strap. Contact Barry for replacement strap
Missing label	Set net aside, attempt to identify, and make a temporary label. Contact Barry for a replacement label
Date of manufacture is greater than 5 years	No longer fit to remain in service unless as determined and validated by Barry (per inspection and testing)
Other damages or concerns	Contact Barry at 1-800-305-2673

**IMPORTANT:** a Barry B-Net System is never as valuable as a human life. If for any reason you do not feel comfortable using a system, retire it immediately from service.

## INSPECTION AND MAINTENANCE LOG

**Model:** Barry B-Net System

**Description:** 2m x 20m

**Manufacturing date:** \_\_\_\_\_

**Lot/Serial number:** \_\_\_\_\_

**Barry Cordage Ltd.**

6110, des Grandes Prairies  
 Montreal (Quebec) Canada, H1P 1A2  
 (800) 305-2673  
 www.barry.ca

Installation date	Take down date	Inspection date	Items noted	Corrective action taken	Maintenance date
Name (print):			Name (signature):		

Installation date	Take down date	Inspection date	Items noted	Corrective action taken	Maintenance date
Name (print):			Name (signature):		

Installation date	Take down date	Inspection date	Items noted	Corrective action taken	Maintenance date
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