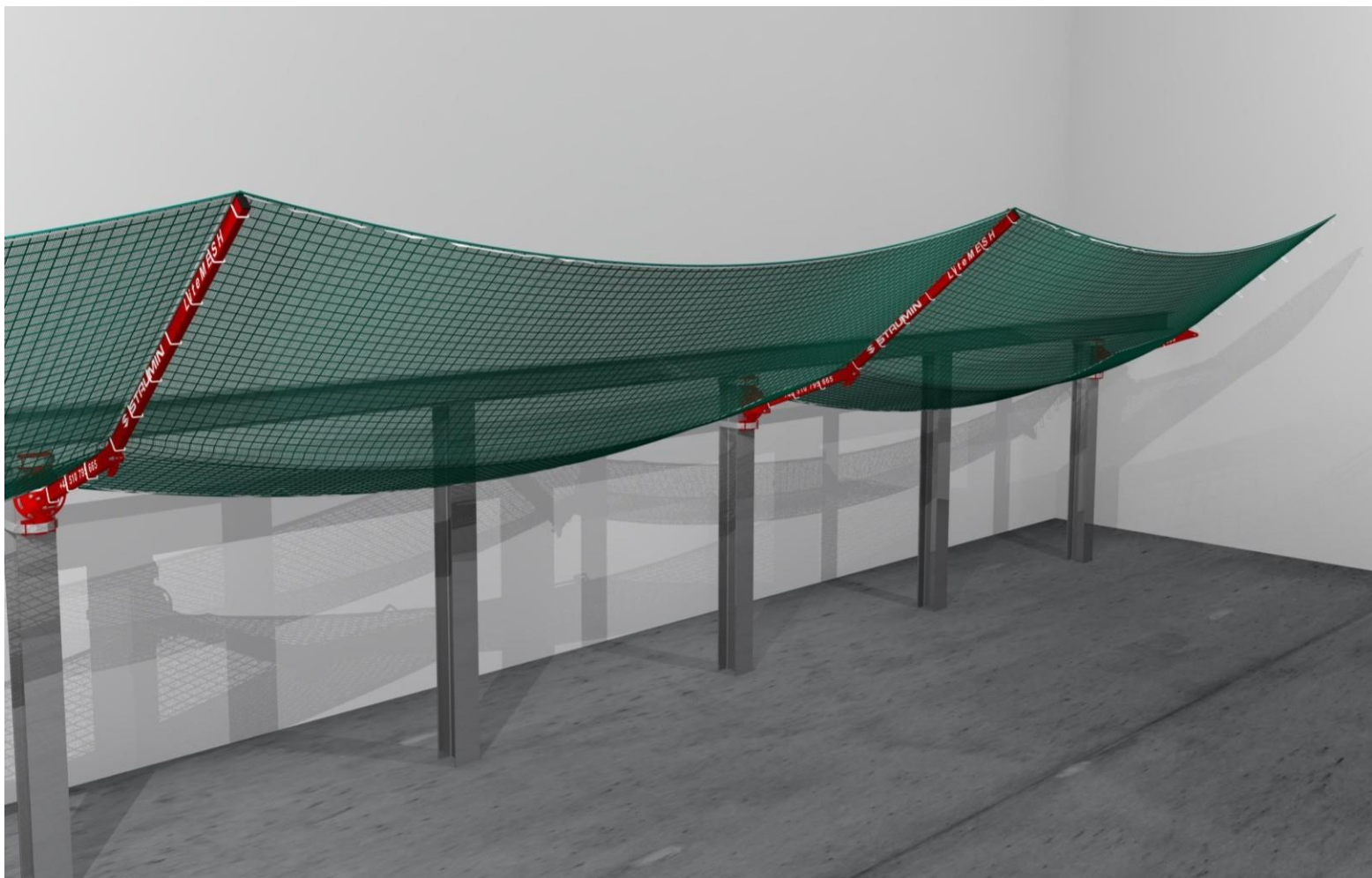# "LiteMESH" FALL ARREST SYSTEM

TECHNICAL DOCUMENTATION AND ASSEMBLY MANUAL

1.0 TECHNICAL DOCUMENTATION, GENERAL DESCRIPTION OF THE LiteMESH SYSTEM

The LiteMESH fall arrest system is a steel construction consisting of a few basic elements:

- SVIWEL ARM OF THE CONSOLE
- CONSOLE'S HOOLDER
- MODULE'S NET 6×3M (4×3M)
- CORNER NET 3×3M
- CONNECTING LINE Ø8
- STRECHING LINE Ø8
- STRECHING HOLDER
- ASSEMBLY ADAPTER OF THE CONSOLE "H"

THE FALL ARREST SYSTEM is available in a few configurations which were
presented in chapter 2.0
The LITEMESH modules can work with different elements of the system, i.e.
ASSEMBLY ADAPTERS, CORNER NETS AND S NETS.
The use of a given solution depends on individual conditions of the construction site.
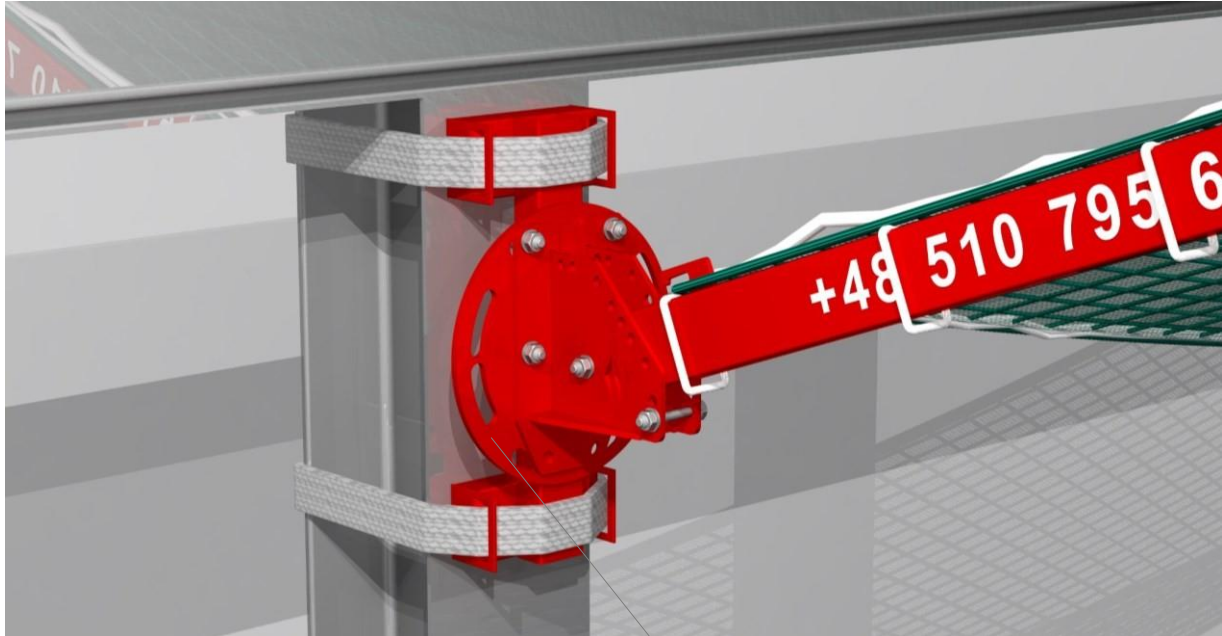
The corrosion protection of the elements is provided by a system of lacquered layers.

1.1 THE CONSTRUCTION OF THE LiteMESH SYSTEM.

Console's swivel arm

LiteMESH MODULE

CONSOLE'S HOLDER

MODULE'S NET 6×3M (4×3M)

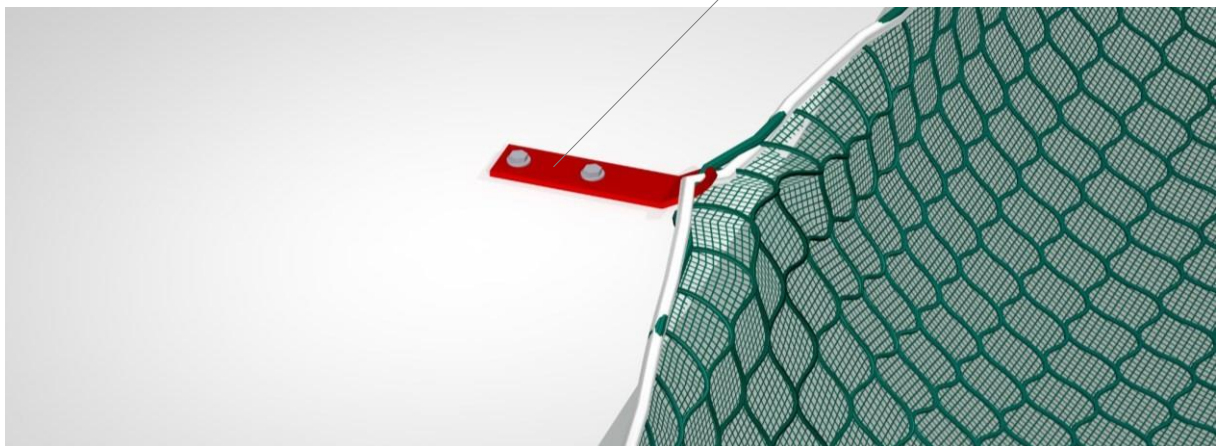CONNECTING LINE Ø8

CORNER NET 3×3M
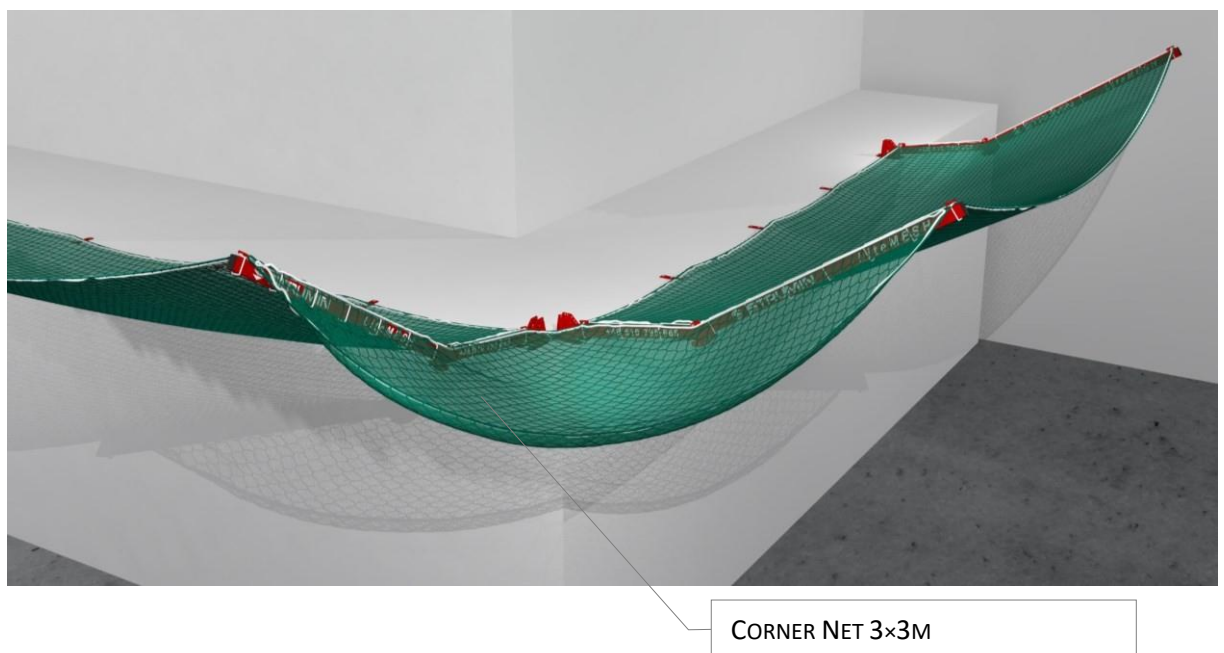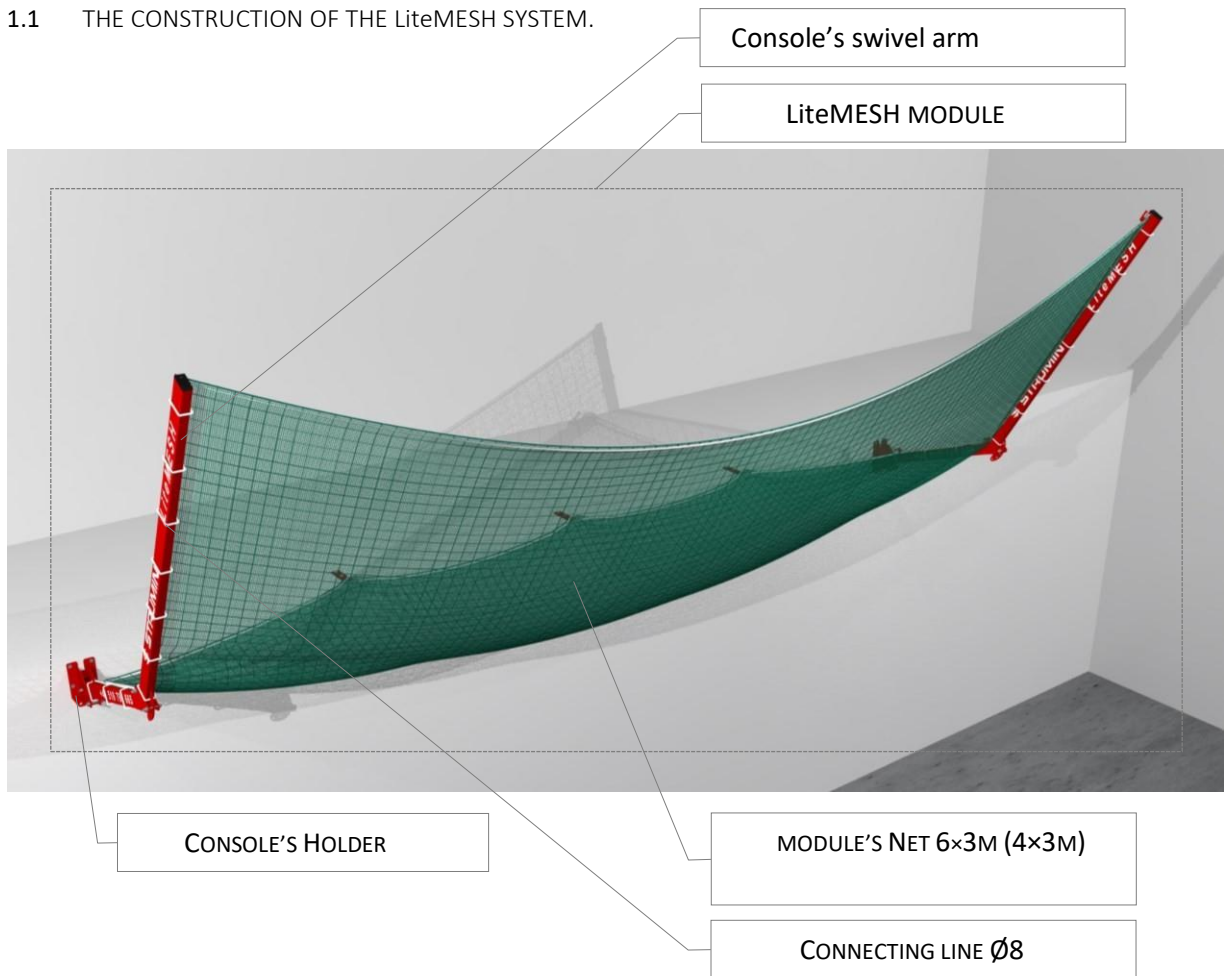
1.1   CONSTRUCTION OF THE LITEMESH SYSTEM.

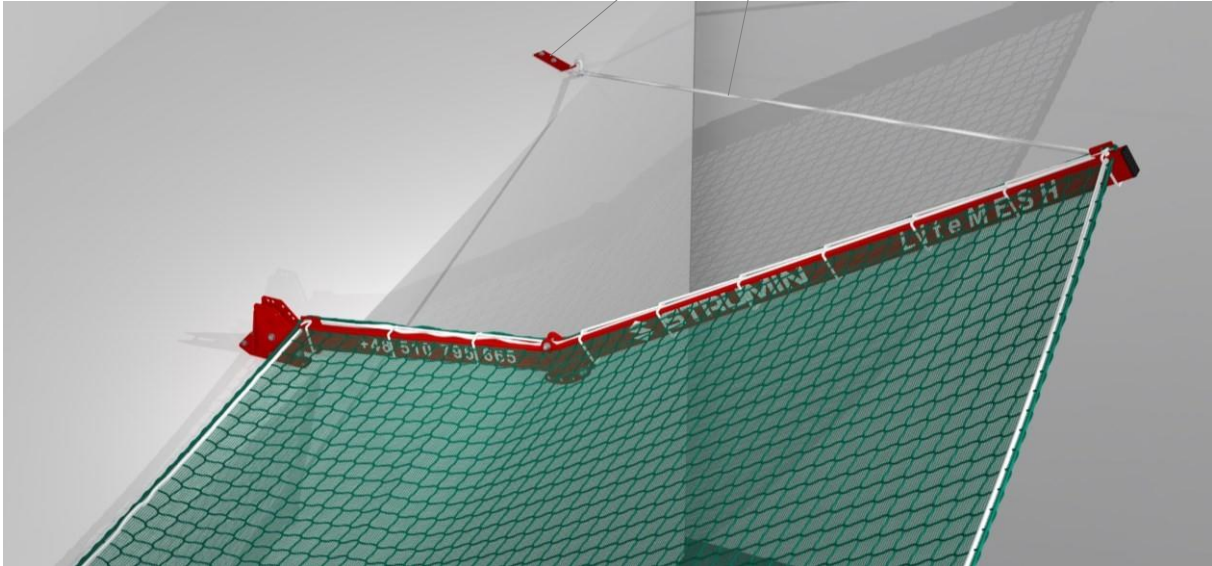Console's assembly adapter "H"

Stretching holder

1.1   CONSTRUCTION OF THE LiteMESH SYSTEM.

STRECHING HOLDER

STRECHING LINE Ø8
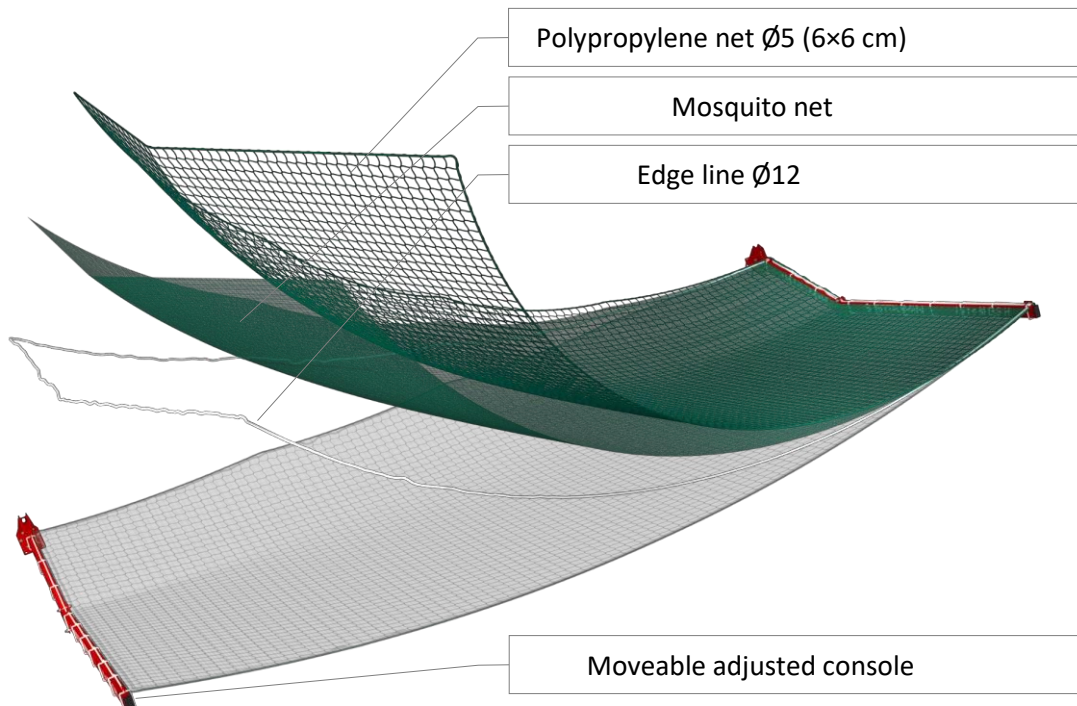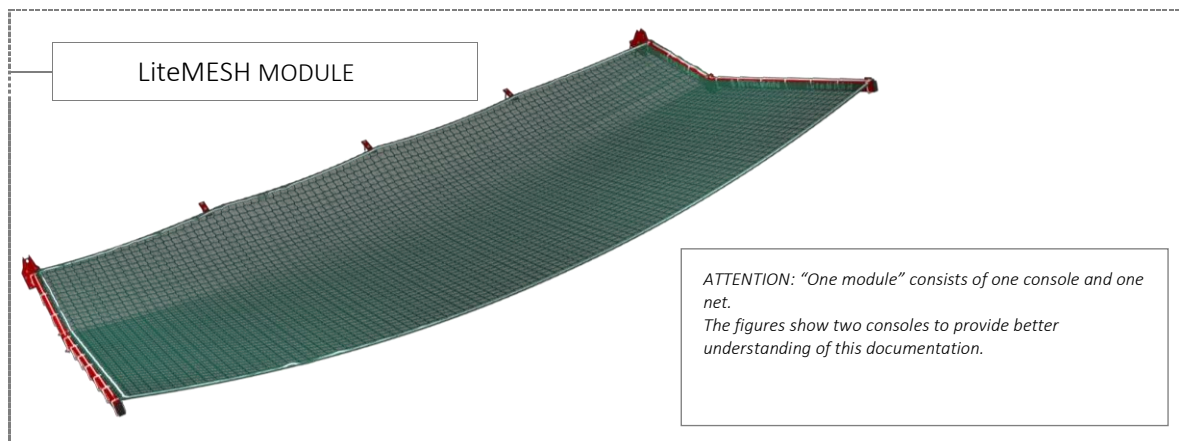
1.2   LiteMESH FALL ARREST SYSTEM'S MODULE

The LiteMESH system's module consists of a moveable, regulated console and
a polypropylene net (6×3 m or 4×3 m).
The console consists of a universal assembly holder and a swivel arm. The arm's opening angle can be adjusted from 90° to 180°.
The net consists of two integrated nets of which one is used to catch large objects and the other one (mosquito net) catches smaller elements, i.e. tools, hardcore and even semi-liquid materials (concrete, mortar) etc.
Along the edge of the net there is an integrated polypropylene line (Ø12 and the strength of 30 kN).
The net used in the system was designed in accordance with the EN-1263-1_2015-02E standard:
TYPE S, A2 Q100.   It means that it is a A2-class net that absorbs min. 2300 J of energy. The allowed maximum fall height for objects is below 2 m.

LiteMESH MODULE

ATTENTION: *"One module" consists of one console and one net.*
The figures show two consoles to provide better understanding of this documentation.

Polypropylene net Ø5 (6×6 cm)

Mosquito net

Edge line Ø12

Moveable adjusted console

1.3   MOVEABLE ADJUSTED CONSOLE LiteMESH

The console consists of the universal assembly holder and the adjustable
moveable arm. The arm is divided by a joint into two asymmetrical parts.
The arm is equipped with two holders of the edge line.
The console can be configured for different joint's opening angles. It allows to use the
device in different projects that take advantage of the flexibility of the LiteMESH system.

The edge line's holder

The universal assembly holder

The adjusted moveable arm

Joint
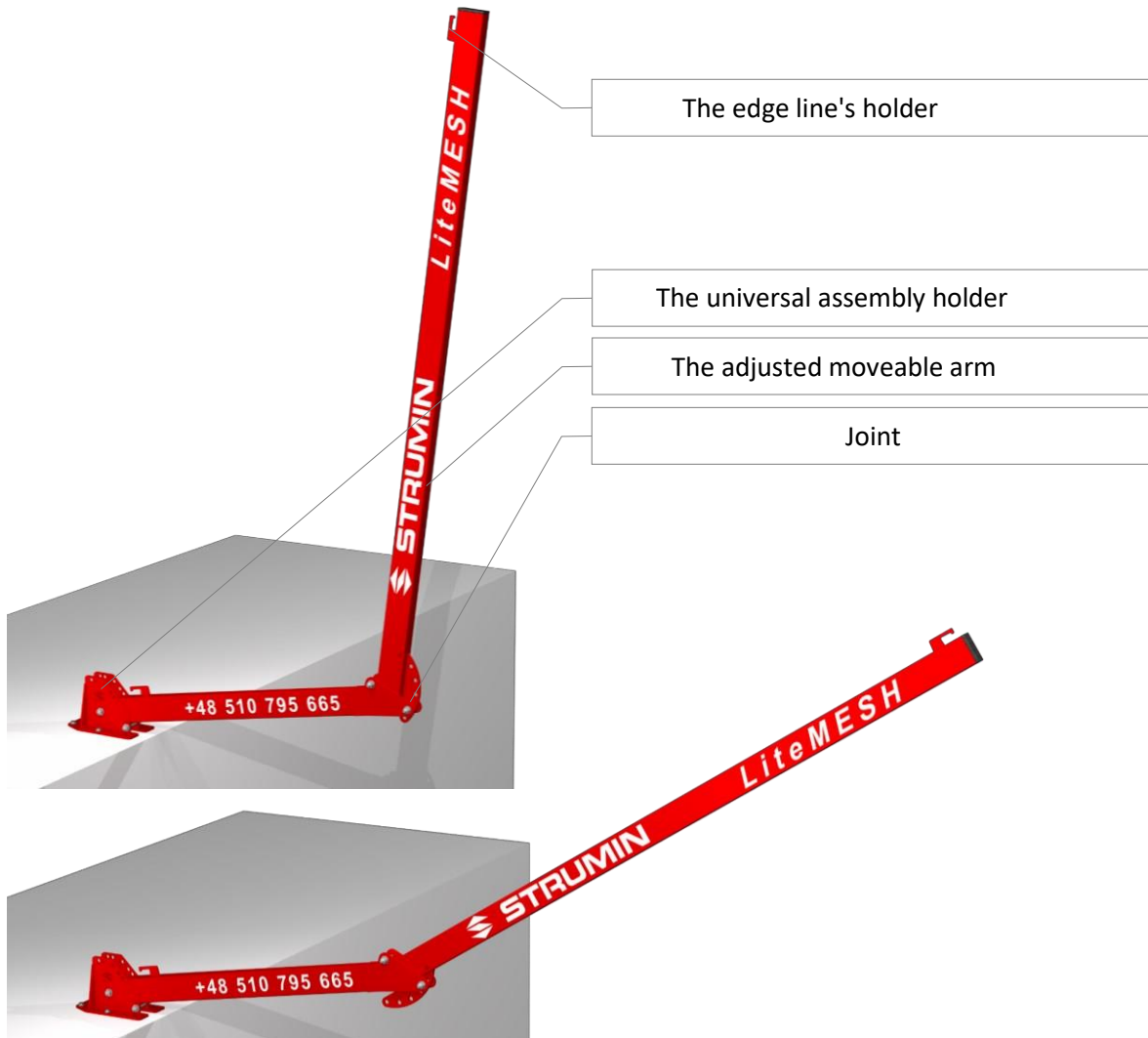
### 1.4 UNIVERSAL ASSEMBLY HOLDER LiteMESH

The assembly holder is used to adjust the position of the moveable arm (attached to the ceiling or wall). It can be fasten to the ceiling with four screws to concrete, i.e. FBS 10×100.
Due to the forces influencing the arm an screws no other
types of fixing shall be used
The floor foot has to be anchored to the floor with concrete screws that provide the durability of 10 kN.
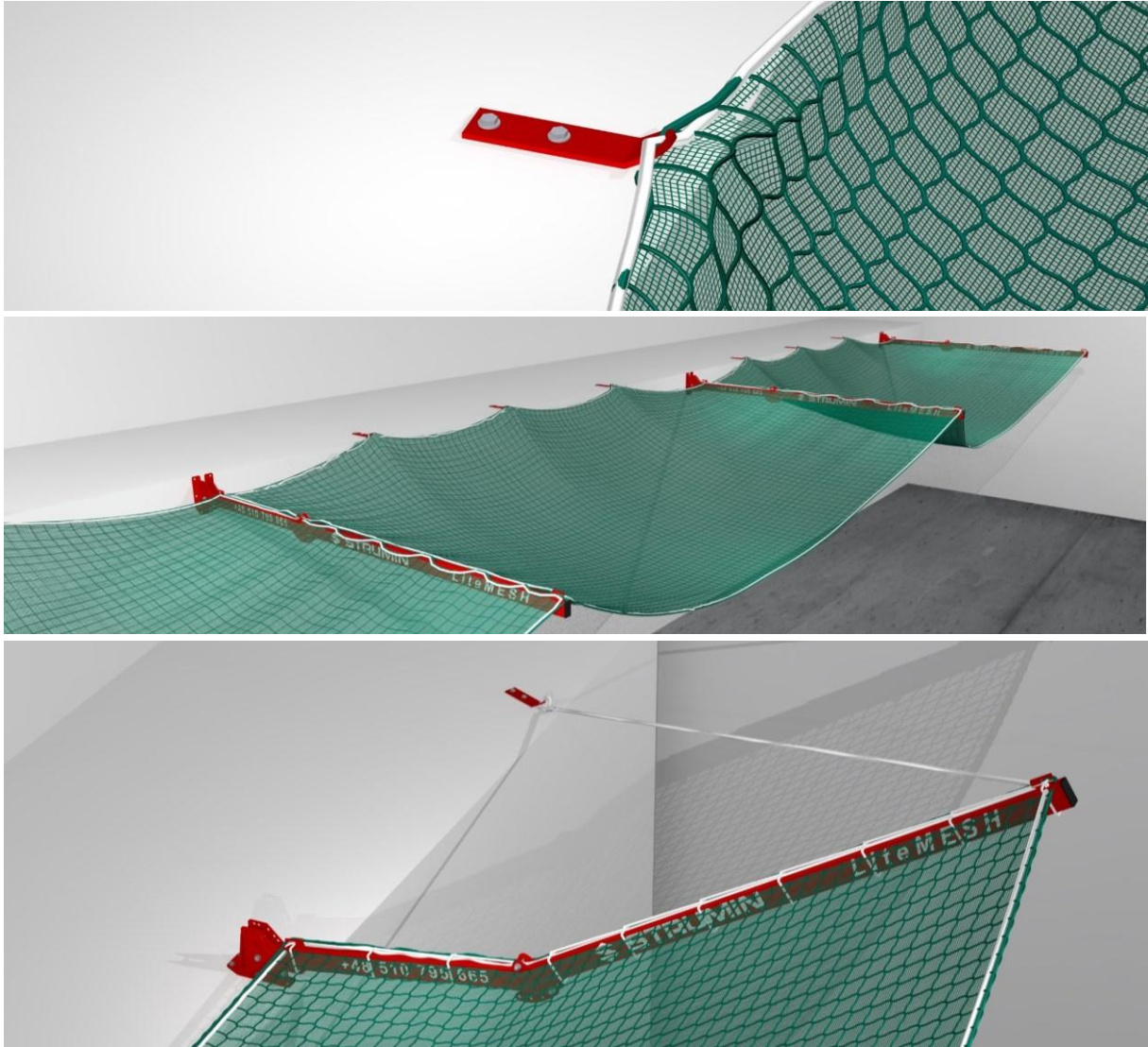The adapter was designed in such a way, as to allow its assembly to the top, front or bottom of the floor. The figures below show three basic configurations of the adapter.

The tools needed to perform the assembly are a hammer drill, a Ø10 bit and an impact wrench.
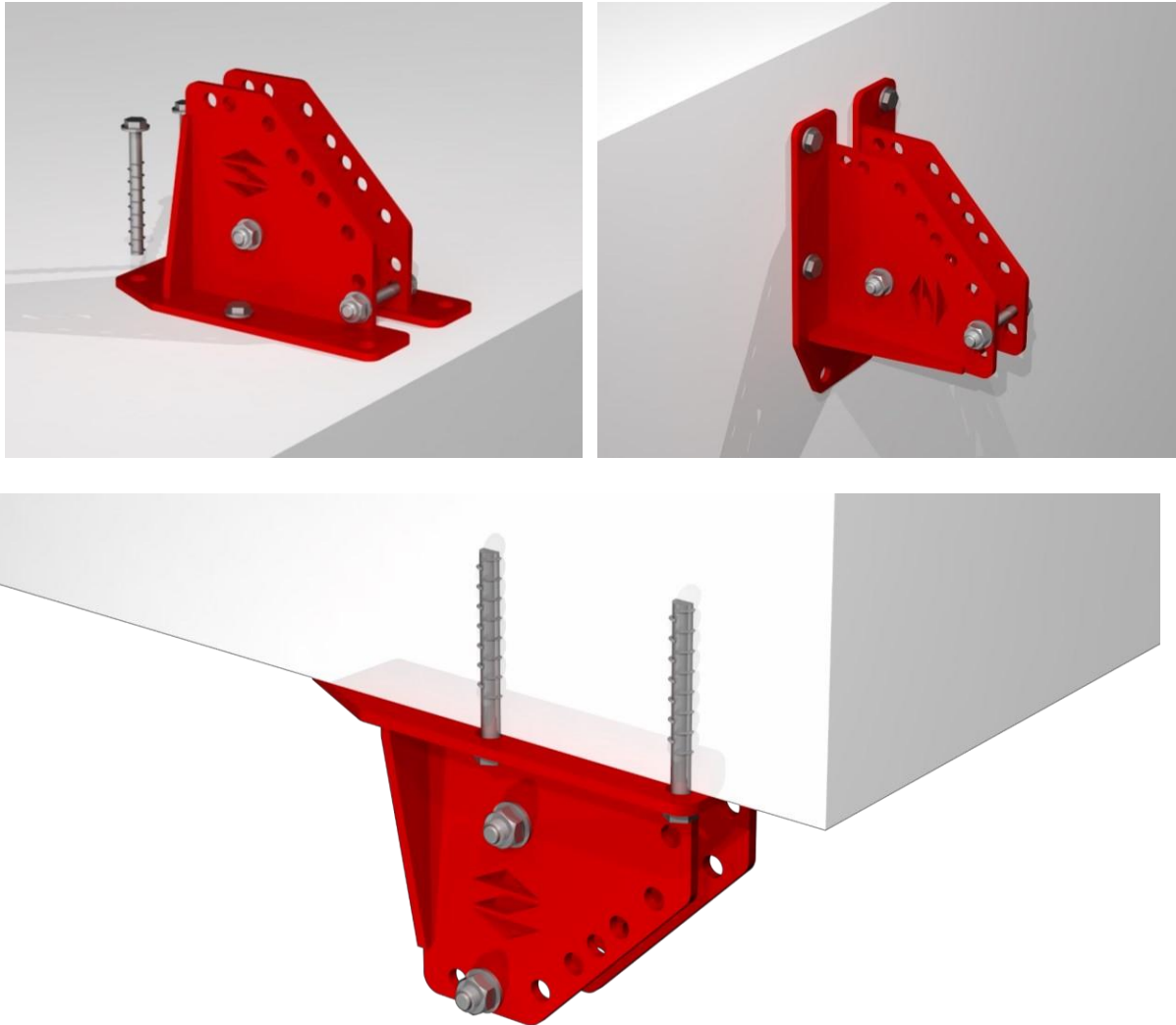
1.5   STRETCHING AND EDGE LINE HOLDER

The safety net is additionally attached to the floor along its edge (with connectors) – between neighbouring consoles. The recommended number of connectors depends on individual needs in a given situation. It is generally assumed that the distance between the assembly points shall be no bigger than 3 m.

If it is necessary because of the conditions during the assembly, the connectors should be attached closer to one another, so they can provide sufficient adherence to the floor's edge and the edge line with the net.

The connectors are also used for stretching the most extreme consoles.

1.6   "H" CONSOLE ASSEMBLY ADAPTER

The assembly adapter of the console allows to assemble the universal attaching holder to different types of poles, balks etc. The figures below show an example of the assembly to metal constructional elements of a building.
Because the assembly of the adapter is performed with polypropylene stripes, there is no need for any screw connections between the construction and the adapter. Thanks to it, the assembly of the system is quicker and cheaper.
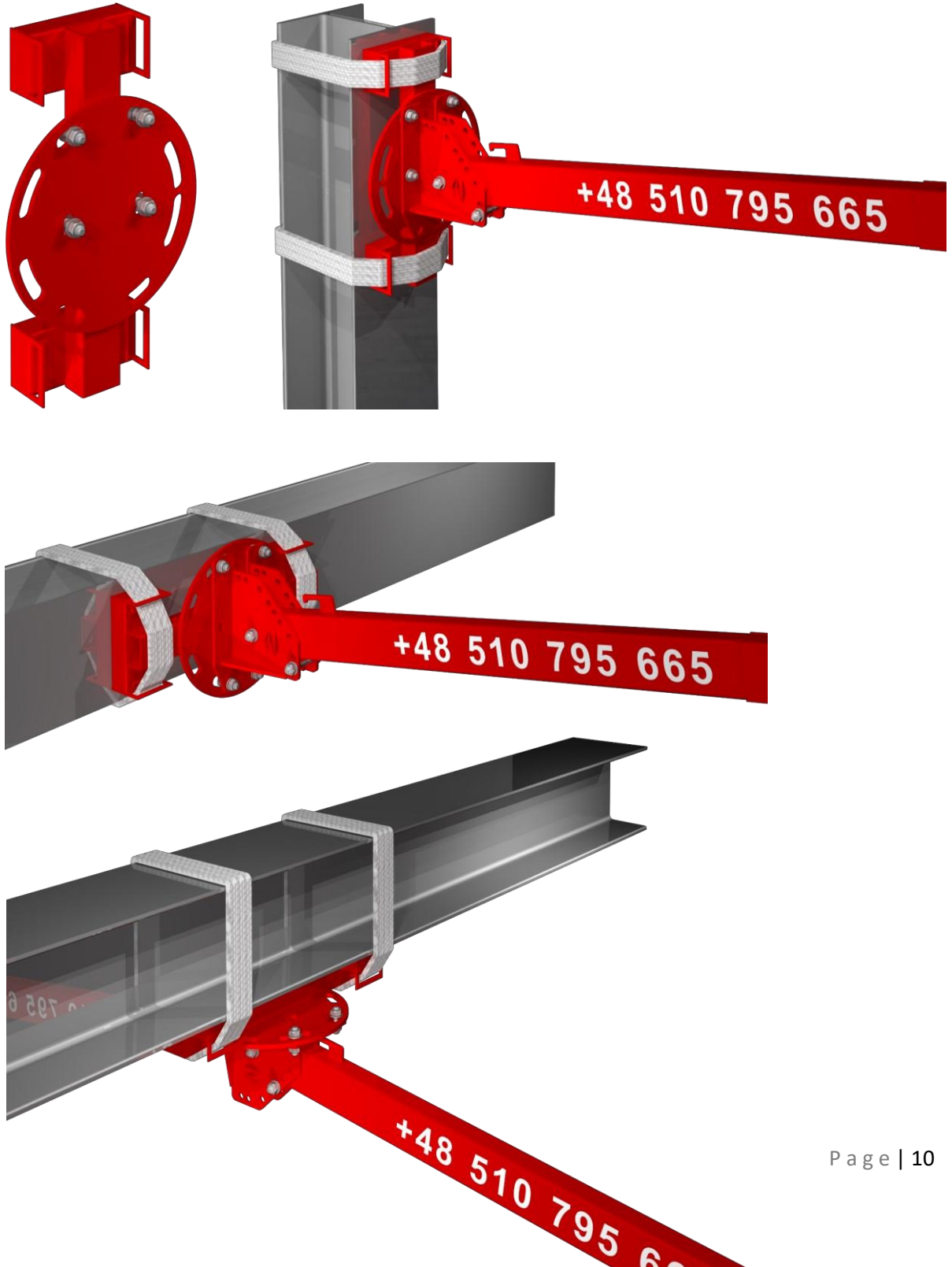
1.7 SCREWS FOR CONCRETE

Characteristics:
- Self-tapping screws for concrete,
- Ø12 thread,
- Ø10 mandrel,
- Ø10 hole (drilled in concrete)
- galvanised,
- 100 mm length,
- Assembled with
  a screwdriver
  (key No. 15),

CE
20
Hilti AG
FL-9494 Schaan
Hilti Werke
0672-CPR-0361
ETA-13/1038
Notified body 0672
EAD 330232-01
(EAD 330011-00)
(Seismic C1 C2)
www.hilti.group

**2.0** CONFIGURATION OF THE LiteMESH SYSTEM

The idea of the LiteMESH fall-arrest system is creating a simple technical solution which protects from falling objects while providing many configuration options that allow to adjust the system to the customer's requirements, conditions etc.
The system is based on multifunctional elements which (thanks to their universality) allow to use different configurations of the same elements of the system.
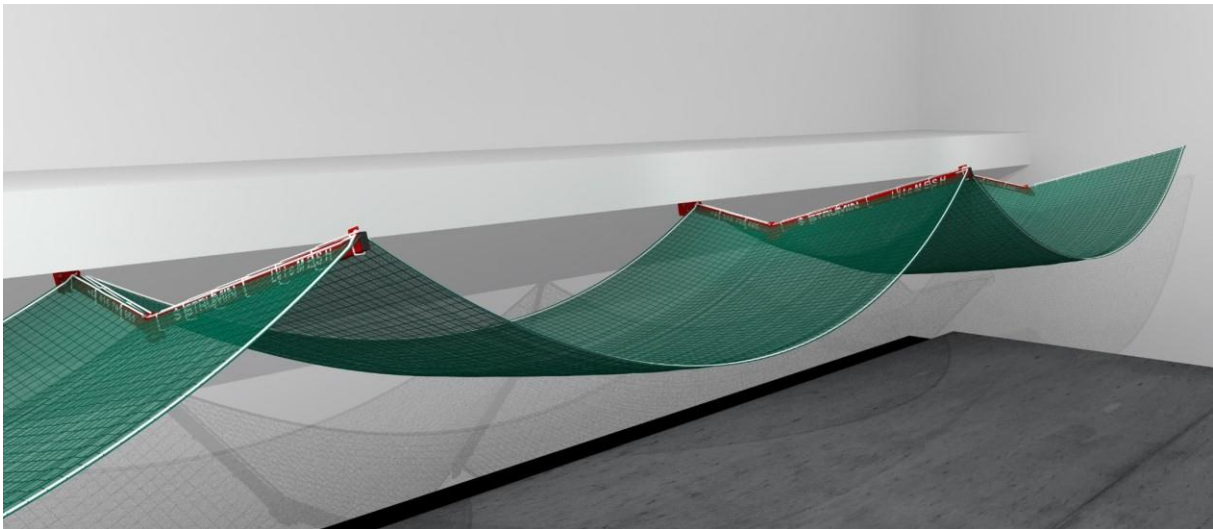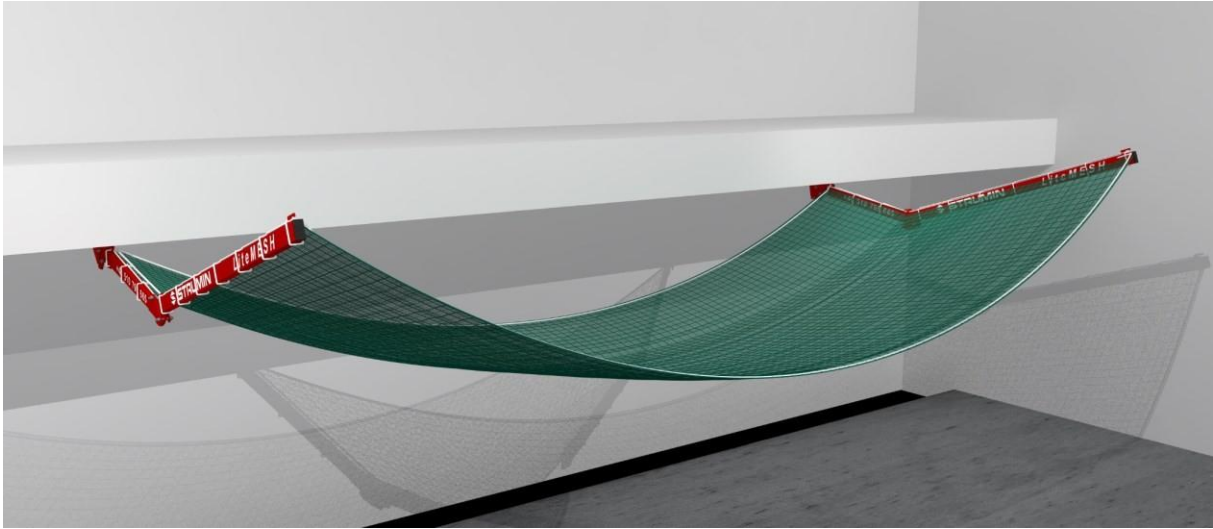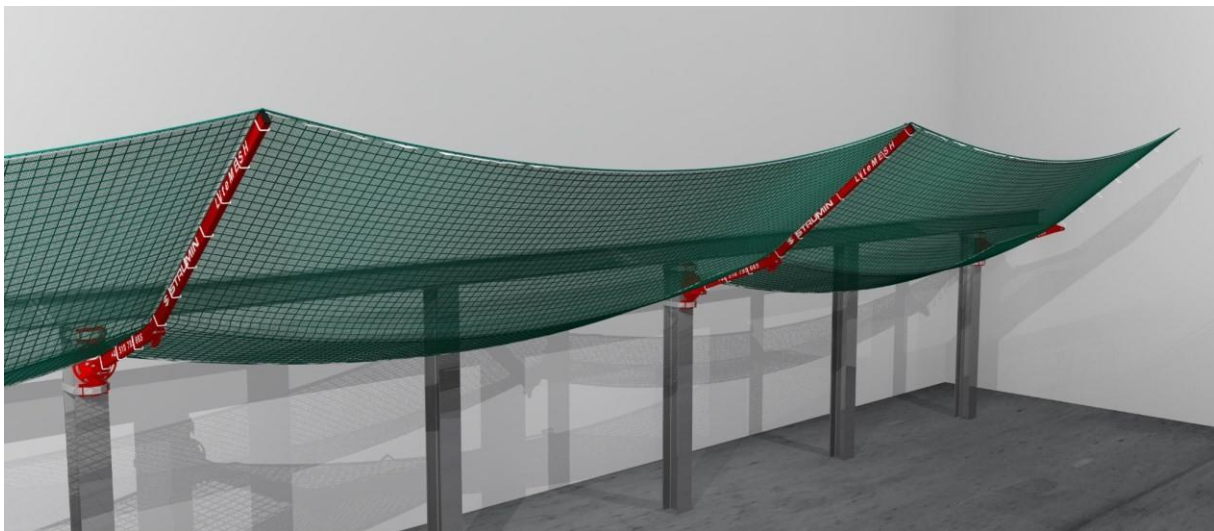
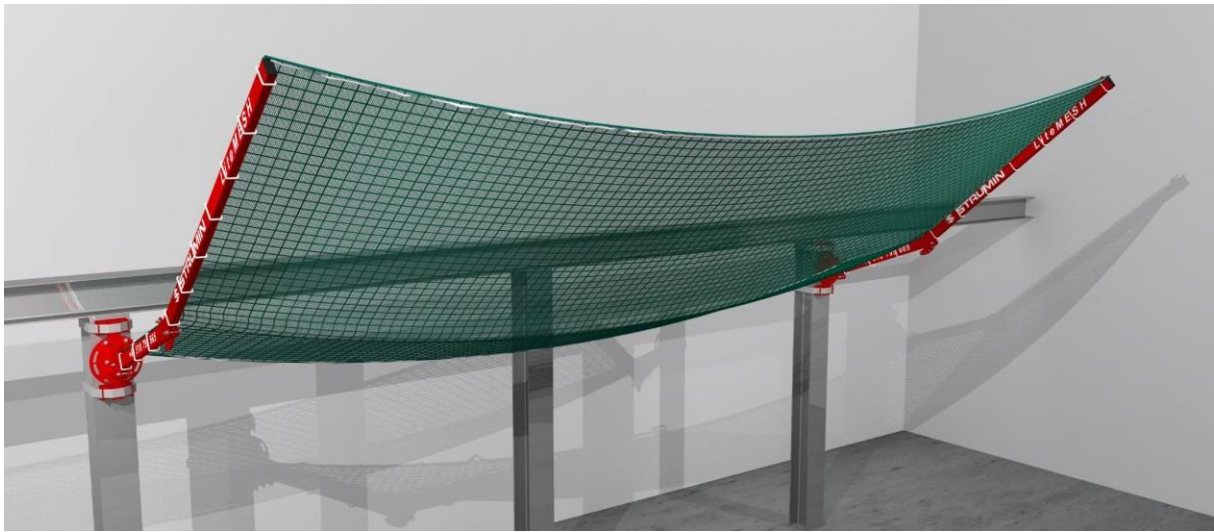**2.1** LiteMESH STRAIGHT – WALL ASSEMBLY
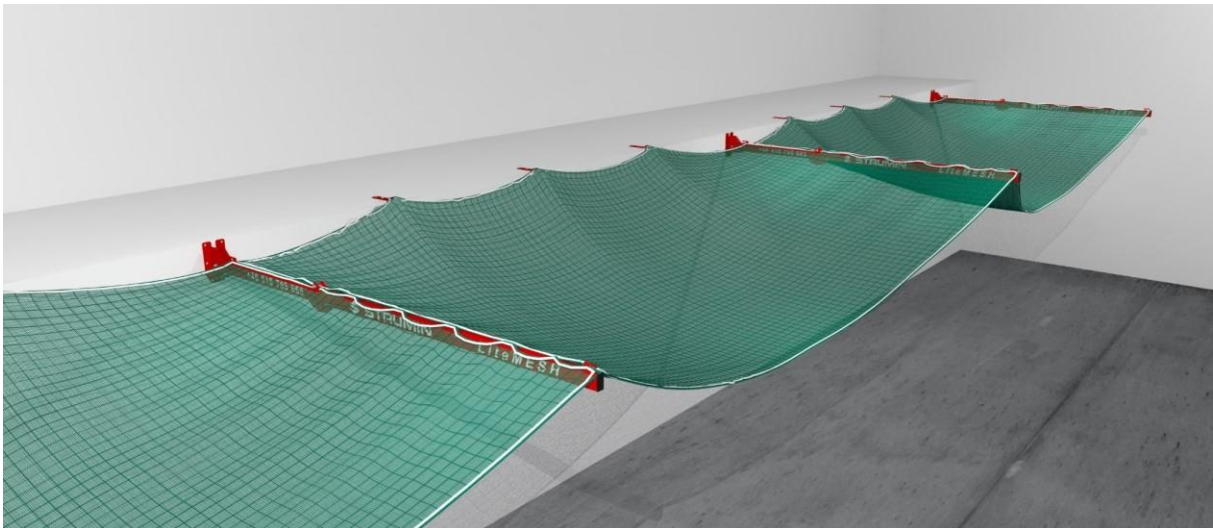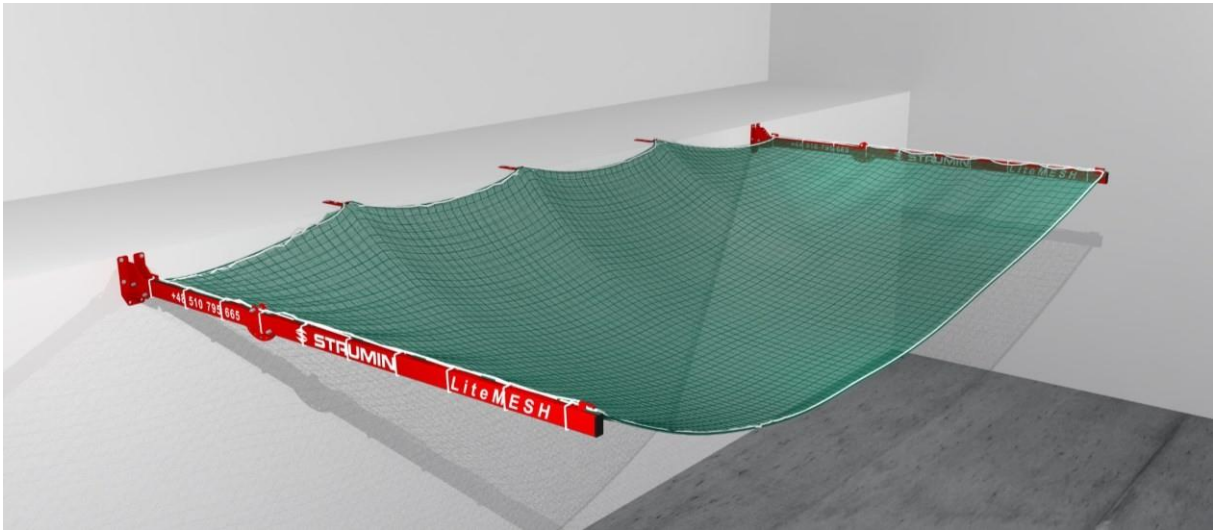
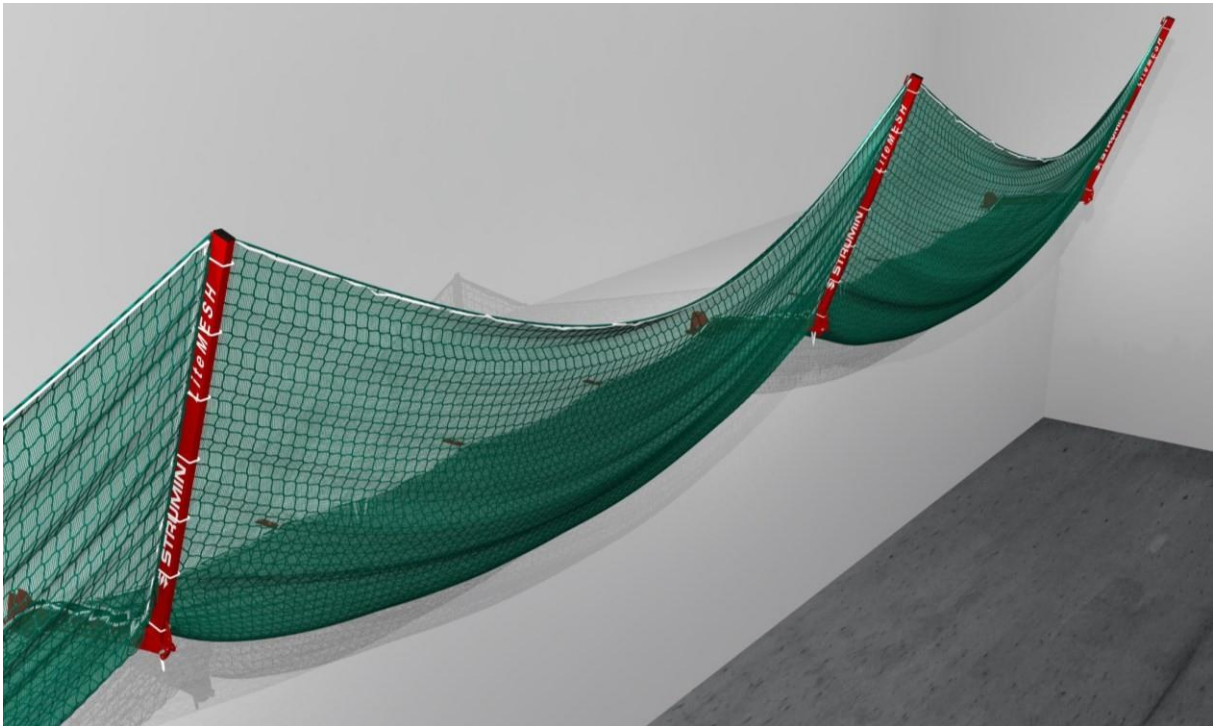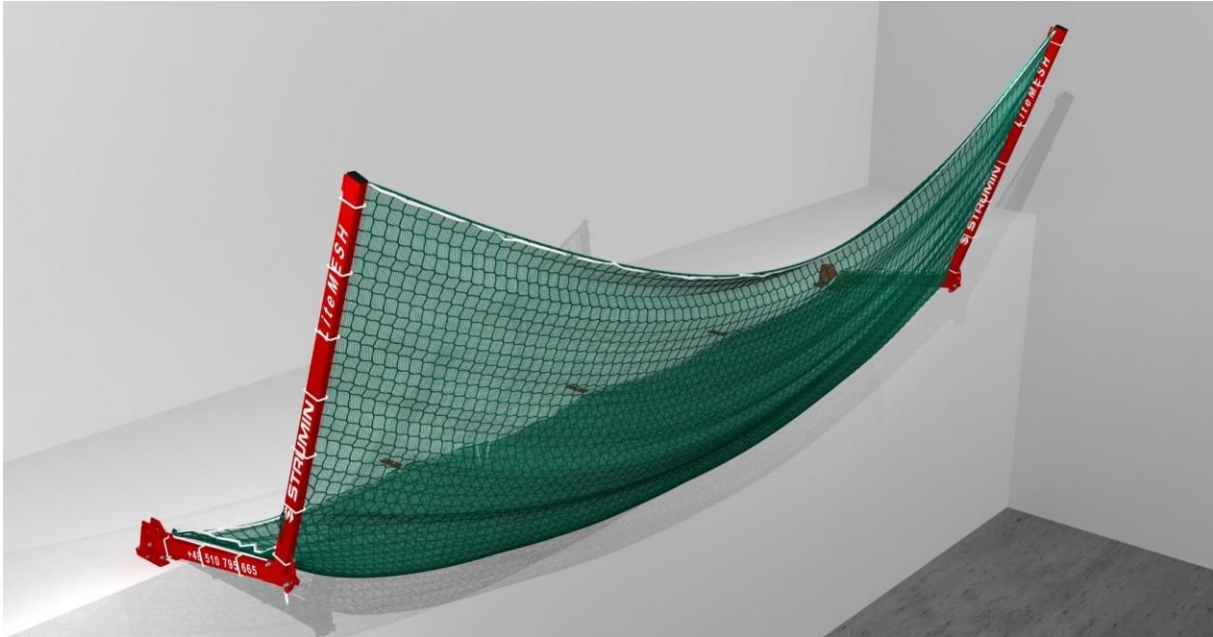## 2.2   LiteMESH "BENT" – WALL ASSEMBLY
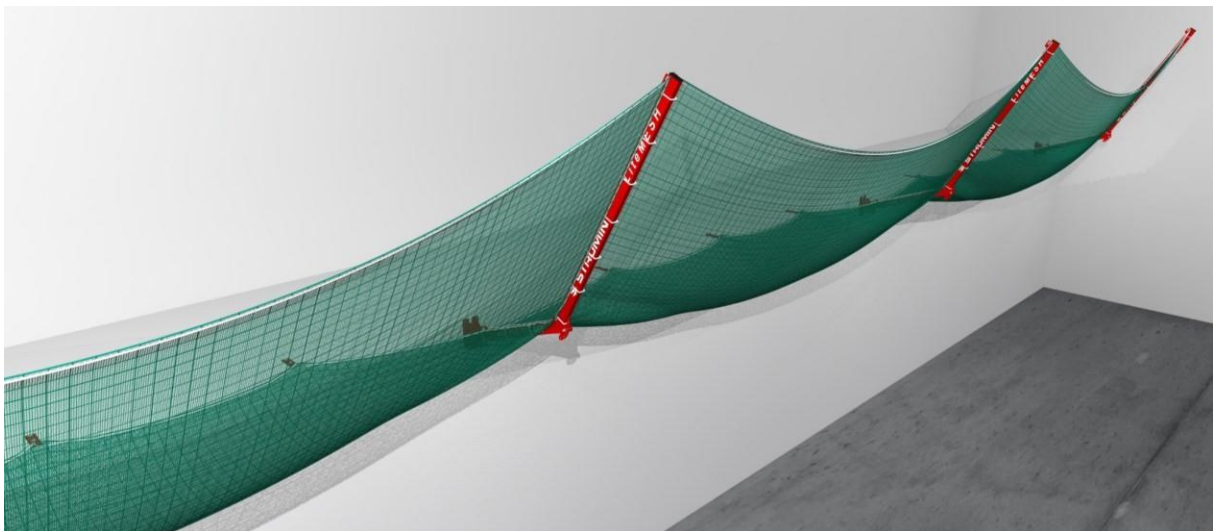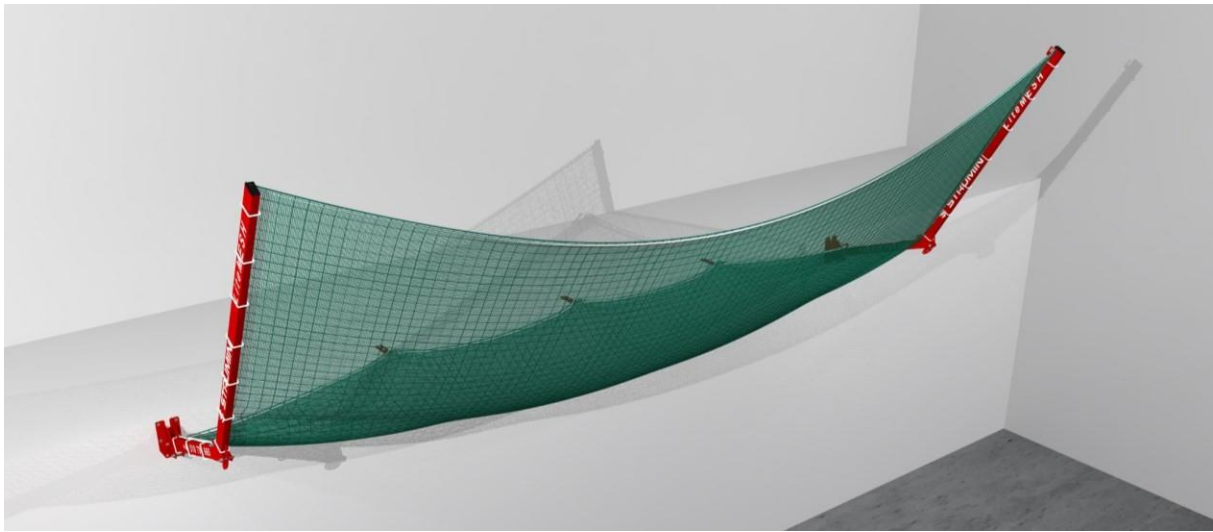
2.3   LiteMESH "BENT" – FLOOR ASSEMBLY

2.4 LiteMESH "BENT" – POLE ASSEMBLY (STEEL PROFILE)
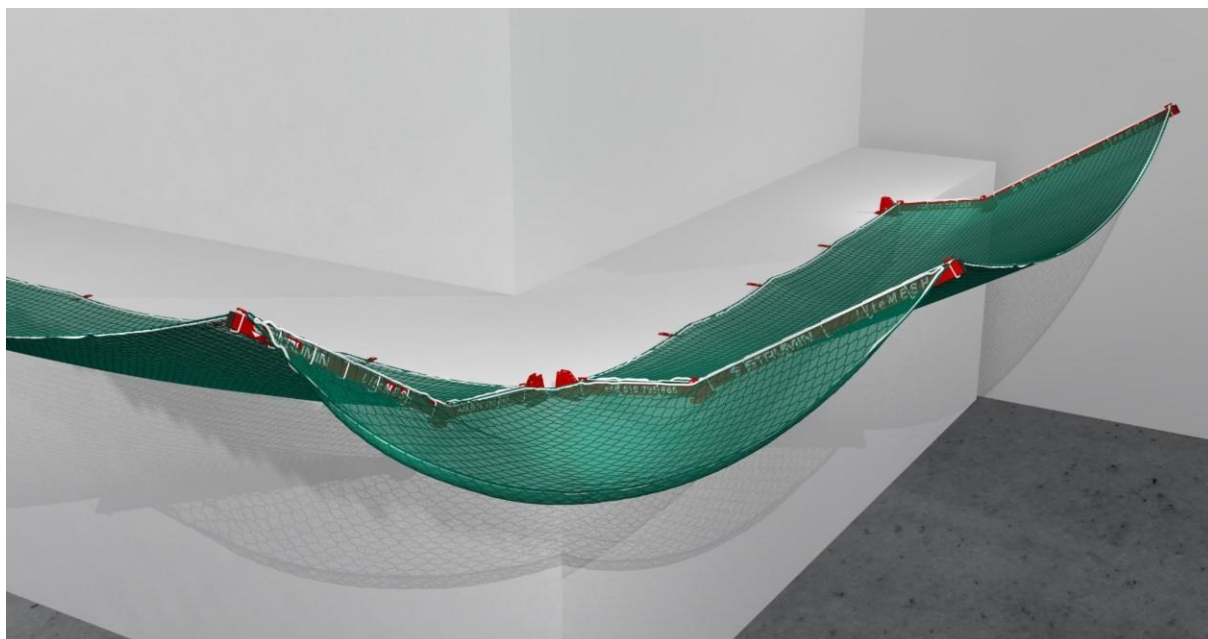
2.5   LiteMESH "BENT" – TOP ASSEMBLY

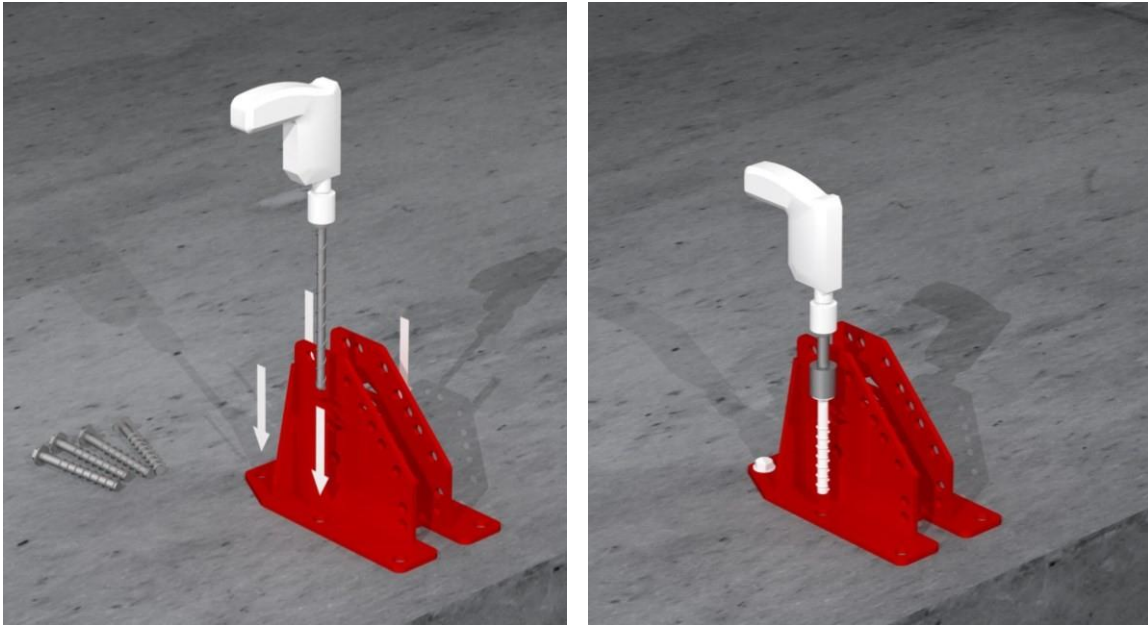## 2.6   LiteMESH "BENT" – CORNER NET

3.0   ASSEMBLY INSTRUCTION

3.1   ASSEMBLY INSTRUCTION OF A UNIVERSAL ASSEMBLY HOLDER

The assembly of a universal assembly holder is performed with the use of four
screws for concrete HUS 10x100.
Ø10 and ~16 cm deep holes shall be drilled in the surface.
The surface where the drilling is performed shall provide the minimum strength of Q=10 kN and
the minimum depth shall be 10 cm.

Assembly the socket to the surface with screws using a screwdriver.

Attention – the assembly holder is equipped with six assembly holes to provide universality – the
holes are used in different configurations, depending on the assembly position (see p. 1.4).

Attention – in practical assembly solutions, the most extreme consoles are assembled with the use of
all six assembly holes. It allows to fix the console within the scope of the Z-axis movements (see the
figure below).

... the most extreme consoles are assembled with the use of all six assembly holes ...
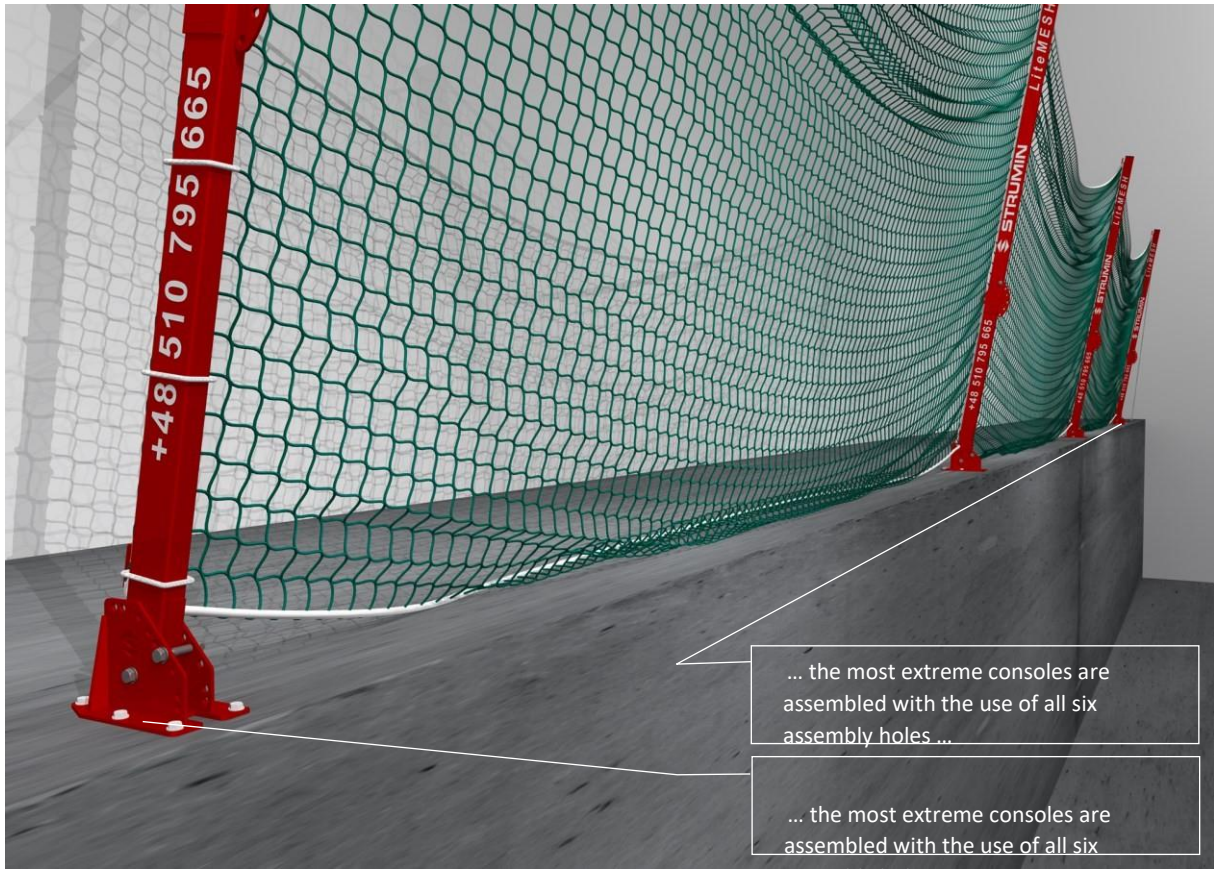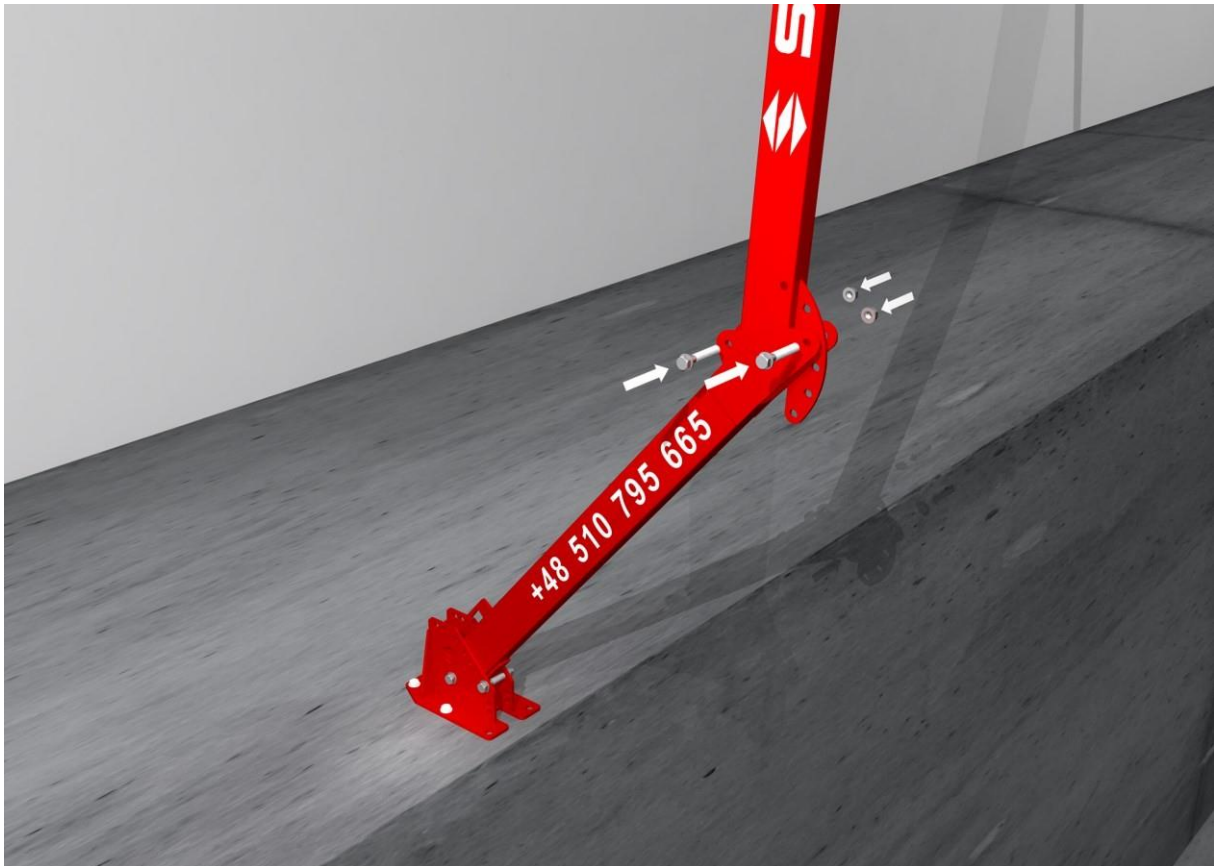
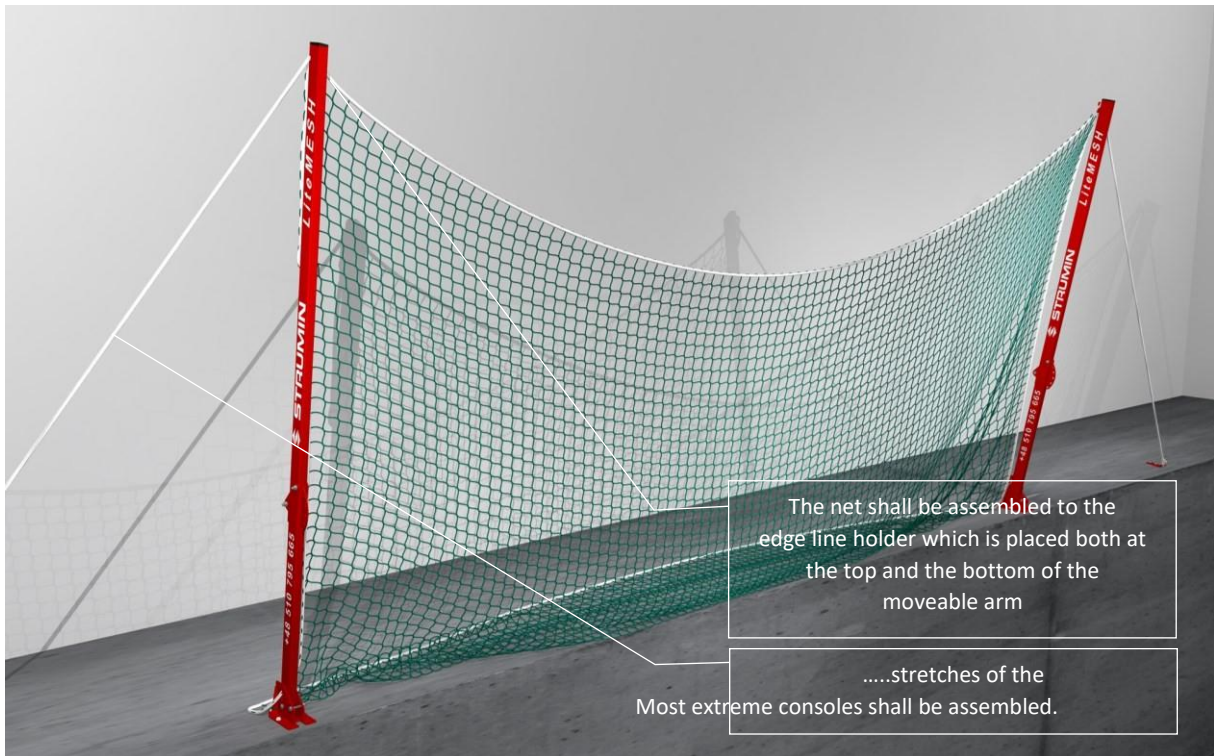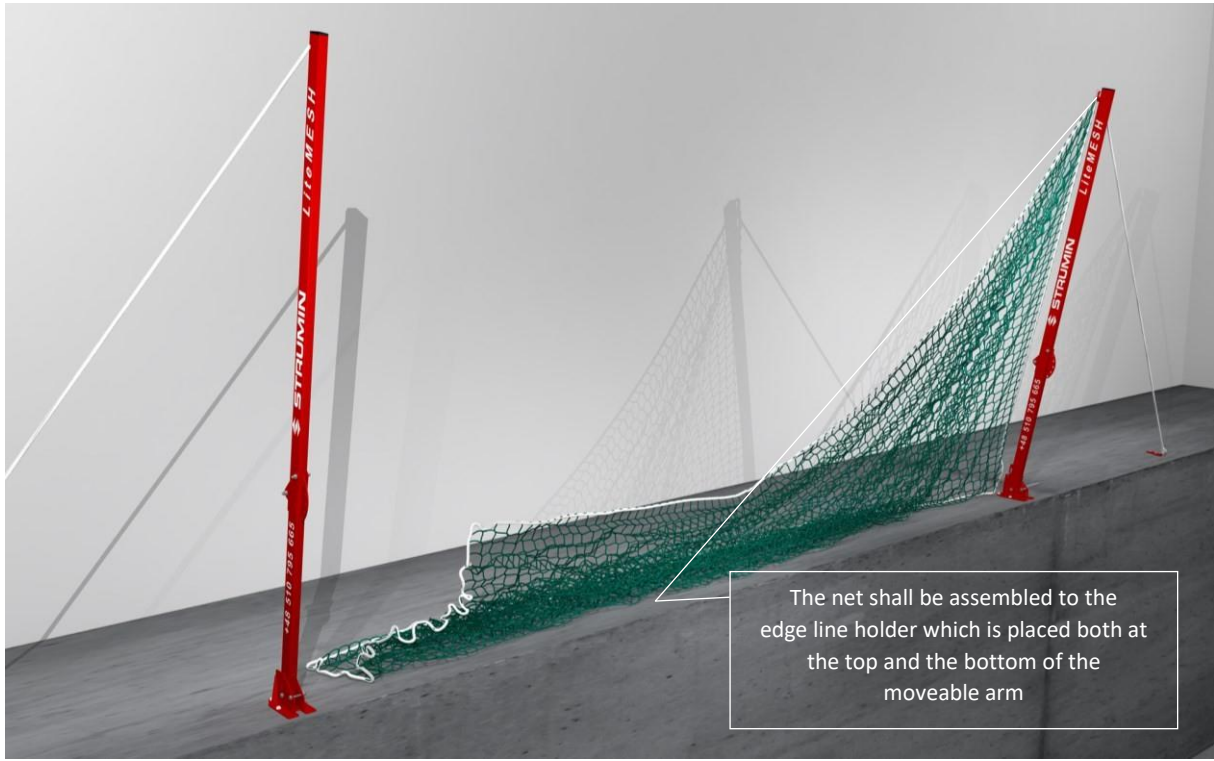## 3.2 MOVEABLE ARM ASSEMBLY INSTRUCTION

The moveable arm is attached to the universal holder with one M12 screw and additional M12 screw locking the arm from the bottom.
In the same way are assembled the elements of the moveable arm in the swivel.
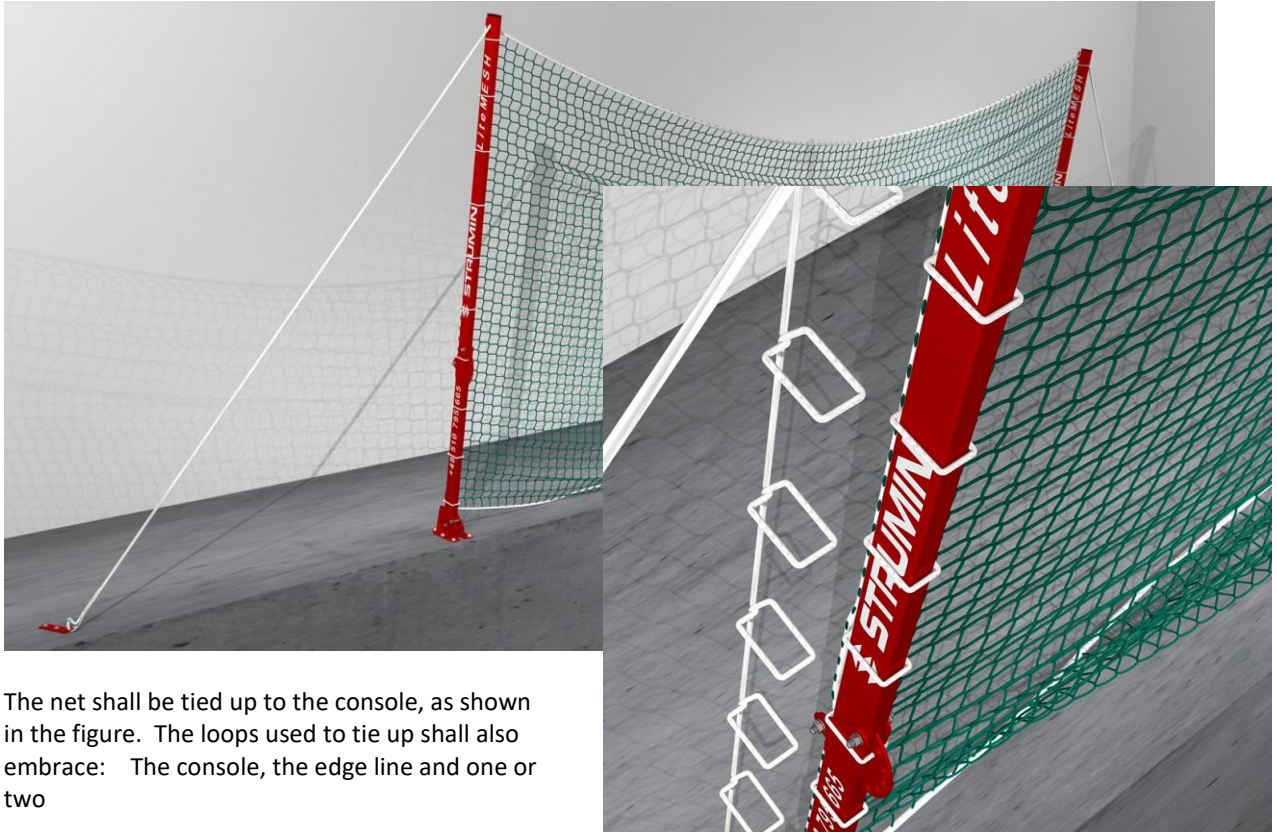
3.3 ASSEMBLY INSTRUCTION OF THE NET ON THE CONSOLE

The net shall be assembled to the edge line holder which is placed both at the top and the bottom of the moveable arm

The net shall be assembled to the edge line holder which is placed both at the top and the bottom of the moveable arm

…..stretches of the
Most extreme consoles shall be assembled.

The net shall be assembled to the edge line holder which is placed both at the top and the bottom of the moveable arm. A pike pole shall be used for the assembly process. The pike pole is also used while performing other actions during the assembly procedure.

Before the assembly of the nets on the consoles, the user shall assemble the stretches on the most extreme consoles. The stretches are also assembled to the edge line's holders.
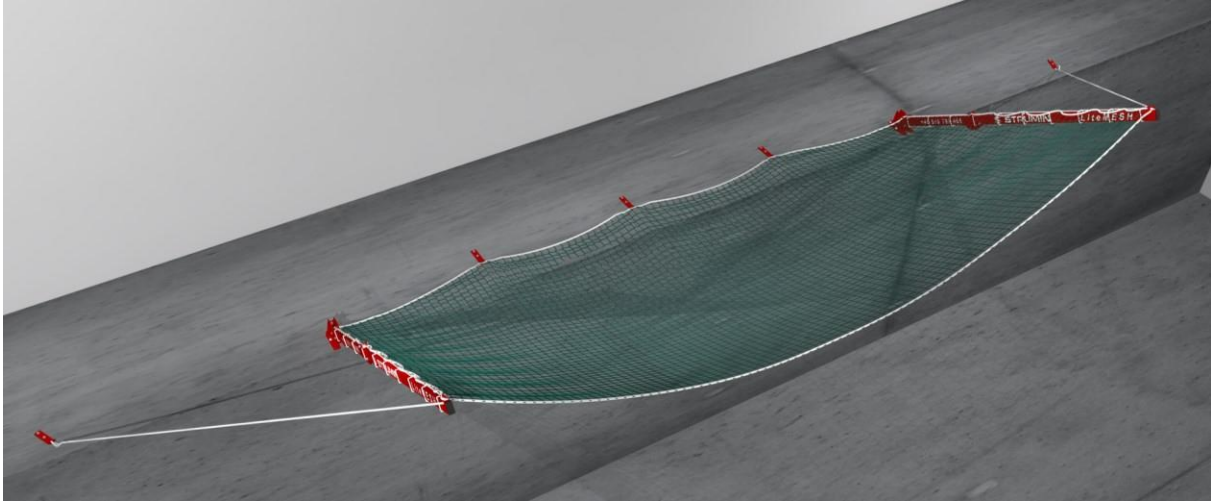
ASSEMBLY OF THE NET TO THE CONSOLE

The net shall be tied up to the console, as shown in the figure. The loops used to tie up shall also embrace: The console, the edge line and one or two

lines of the net

| Lace up line |
| Edge line |
| Net's line |
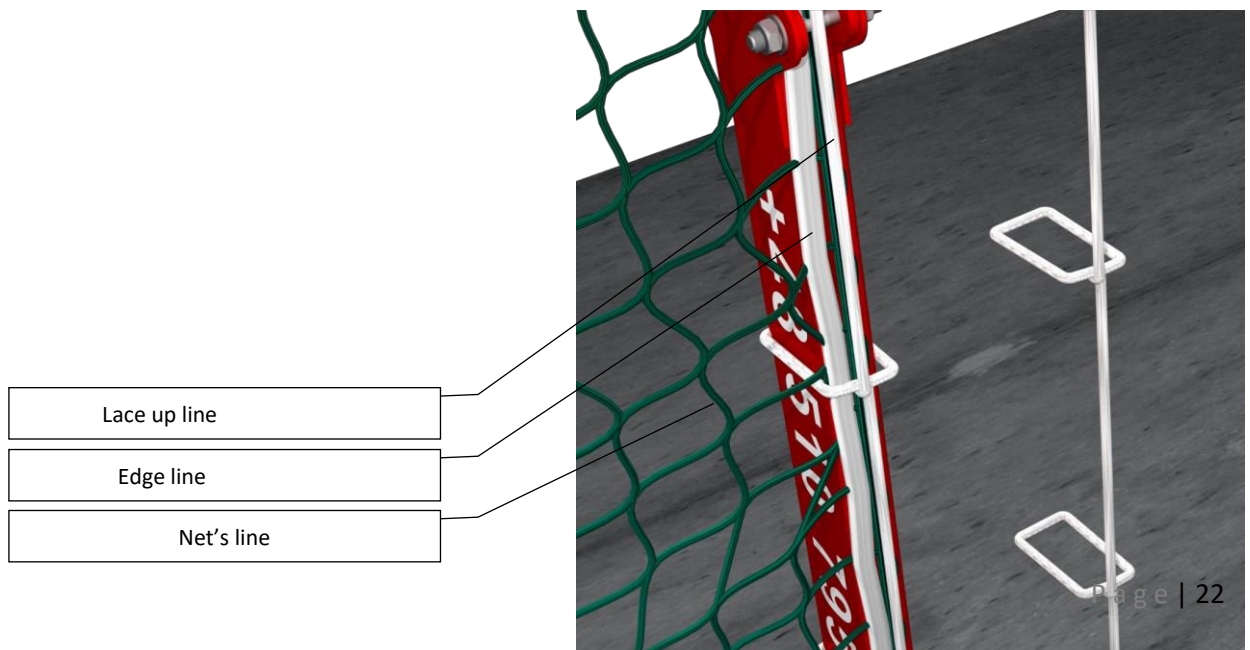
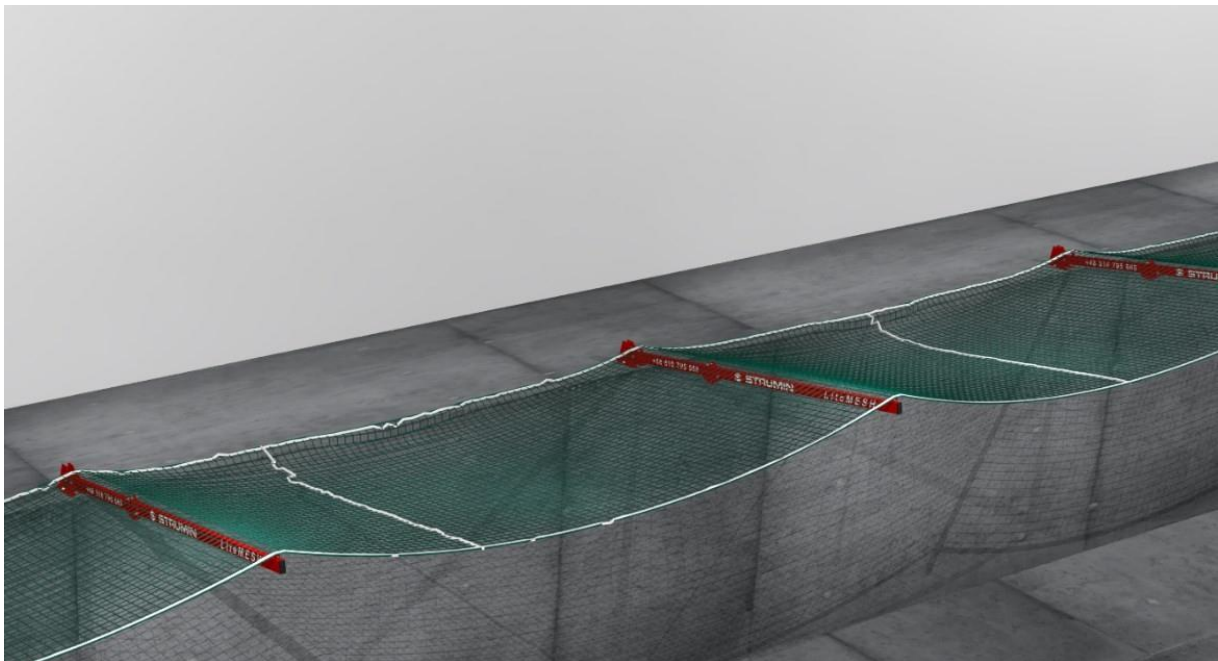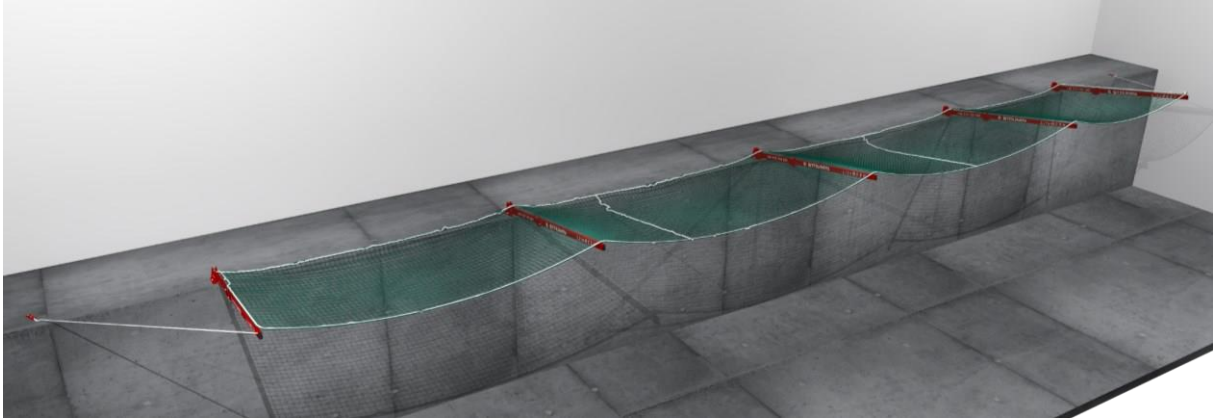### 3.4   ASSEMBLY INSTRUCTION OF THE EDGE LINE'S HOLDERS

After spreading up the arms of the console, the user may perform the assembly of the edge line's holders.

The safety net is additionally assembled to the floor along its edge (with floor connectors) – between the neighbouring consoles.
The distance between the assembly points shall not be bigger than 3 m.   If it is required due to the existing conditions, the connectors shall be assembled closer to one another, so that they provide sufficient adherence to the floor's edge and the edge line with the net.

+48 515 515 445
biuro@strumin.pl
www.strumin.pl

Strumin Equipment
Spółka z ograniczoną odpowiedzialnością
Morawica 191, 32-084 Morawica

P a g e | 23

3.5 PLACEMENT OF THE NETS TOWARDS THE CONSOLE

The placement of the nets towards the console is up to the user (in the limited scope of distance between the consoles).
The place where the nets are connected does not directly relay on the place where the console is assembled. The console can be assembled in any given place and the only limiting condition is the maximum stretch of 6 m.
It means that for one 6 m net there are two consoles, but as the case may be, the user can use more of them or move them in relation to the net (keeping in mind the maximum stretch of the console which equals 6 m).