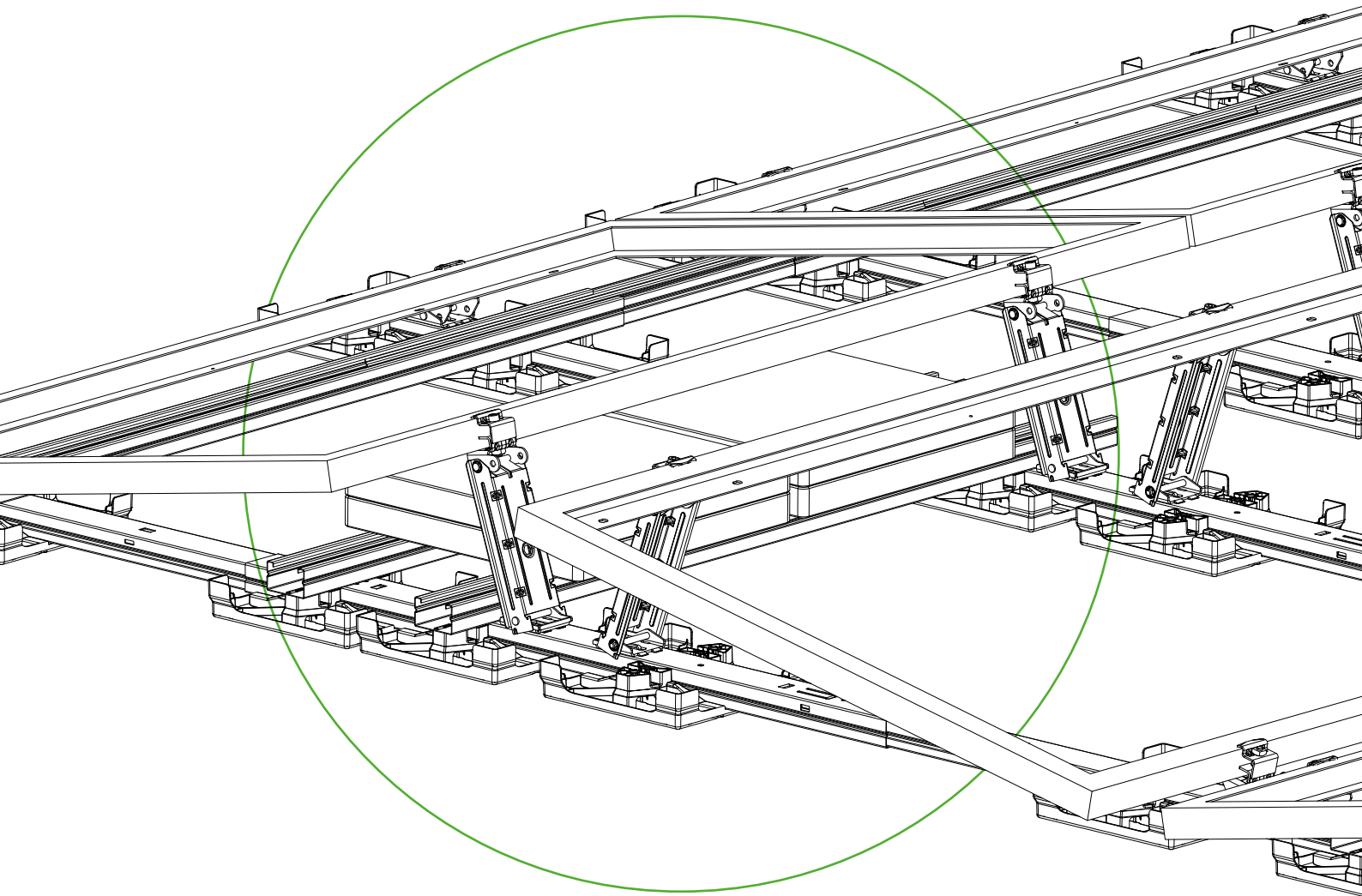


# PMT X118

ASSEMBLY INSTRUCTIONS  
QUARTER POINT CLAMPING



TO A FINISHED SYSTEM IN  
JUST **SEVEN STEPS**

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## PMT X118 QUARTER POINT CLAMPING

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### INTERACTIVE ASSEMBLY INSTRUCTIONS

Click to select page

# General safety instructions



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**Please note that our general safety instructions must be observed.**

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## Installation by specialists only

PMT photovoltaic substructures may only be assembled and commissioned by qualified personnel. These persons must be able to ensure the proper and professional assembly of our products on the basis of their professional aptitude, which they have acquired, for example, through training or professional experience.

### Before assembly starts:

#### 1. Check the structural requirements of the roof and the building:

Before installing the PMT photovoltaic substructure, it is imperative that the customer checks whether the roof and building structure permits the safe installation and operation of the photovoltaic system. This must be checked on site by a qualified person, e.g. a structural engineer, before installation. The information in the project report is based only on planning assumptions, which do not necessarily have to correspond to the conditions on site. Static requirements must therefore be clarified on site and in advance of assembly. Before proceeding, ensure you have confirmation from a qualified person and do not begin assembly without such a document.

#### 2. Compliance with building and accident prevention regulations:

National and local building regulations, standards and environmental protection regulations must be strictly observed.

Occupational safety and accident prevention regulations as well as the regulations of professional associations must be observed.

In particular, the following must be taken into account:

- It is necessary to wear safety clothing [esp. safety helmet, work shoes and gloves].
- For roof work, the regulations for work on the roof must be observed [e.g. use of fall protection, scaffolding with safety gear from an eaves height of 3 m etc.].
- The presence of two people is mandatory for the entire assembly process in order to be able to provide rapid assistance in the event of an accident.

#### 3. Check assembly instructions for updates:

PMT assembly systems are subject to continuous further development. Assembly procedures can change as a result. Therefore, be sure to check the assembly instructions for updates before assembly. They can be found at <https://pmt.solutions/downloads/>. On request, we will also be happy to send you the current version of the assembly instructions.

During the entire assembly time, it must be ensured that a copy of the assembly instructions is available to each installer.

#### 4. The module manufacturer's assembly instructions must also be observed.

#### 5. Equipotential bonding between the individual system parts must be carried out in accordance with the relevant country-specific regulations.

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**PMT accepts no liability for damage resulting from non-compliance with the general safety instructions.**

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# General System Notes

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## a. Basics of planning with PMT PLAN

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### What is PMT PLAN for?

PMT PLAN is used to plan the substructures distributed by PMT on roofs on the basis of data entered by the user and the planning assumptions based on this, which are stored in PMT PLAN.

### Who can use PMT PLAN to make plans?

#### **Requirement of expertise for planning with PMT PLAN**

The proper and correct use of PMT PLAN requires expertise and experience not only in the field of substructures for solar power systems, but also in the construction industry with regard to the roofs on which the entire system is to be used by the end customer.

### How does PMT PLAN make plans?

#### **1. Data input by the user as the basis for planning**

The starting point and basis for planning with PMT PLAN is always and exclusively the project data entered by the user. PMT does not check the accuracy of these data. Rather, the user is solely responsible for correct data collection and entry in PMT PLAN.

**Attention:** If the data is not collected and/or entered correctly by the user, this will have an impact on planning. Changes may lead, among other things, to deviating quantities of material and deviating static requirements. This may lead to personal injury as well as financial losses for which PMT assumes no liability.

#### **2. Planning assumptions in PMT PLAN**

PMT PLAN processes data entered by the user and uses certain planning assumptions in the process. These planning assumptions in turn result from technical regulations that underlie the calculations of PMT PLAN.

Which planning assumptions underlie the concrete planning can be taken from the project report?

PMT PLAN takes into account the Eurocodes, i.e. the European-wide uniform rules for measurement in the construction industry, including national annexes, as well as national building regulations.

PMT endeavours to ensure the up-to-dateness of the Eurocodes taken into account by means of updates. However, we would like to point out that after the publication of new rules, a certain period of time is always required to implement them in the software, which is why there is no entitlement to appropriate updates and the user is always responsible for observing the latest state of the rules on which the program is based.

The rules are applied on the basis of the specified location. It is the responsibility of the user to check planning assumptions for their correctness.

**Attention:** If planning assumptions are not checked by the user for correctness, this has an impact on the planning. Changes may lead, among other things, to deviating quantities of material and deviating static requirements. This may lead to personal injury as well as financial losses for which PMT assumes no liability.

#### **3. What is the purpose of the project report?**

##### **What does "What's important is what's on the roof" mean?**

PMT PLAN creates a project report based on the user's input. However, this planning report cannot and should not replace the expert planning based on actual conditions on site.

The project report is therefore not the end of your project planning, but the beginning.



**The only appropriate professional approach is the following, which is the sole responsibility of the user:**

**First step:** Before ordering the photovoltaic substructures and even more so before assembling them on the roof, the user must check the correctness and plausibility of the data, planning assumptions and results in the project report.

**Second step:** ("What's important is what's on the roof!") It is imperative that the user verifies the project report also on the basis of the actual conditions on the roof. In our experience, project-specific features must be taken into account for each roof, which usually only arise on the roof on site.

If the user does not have the necessary expertise to review the project report, they must consult an expert for this purpose.

If changes arise from these mandatory audit steps compared to the project report, a new planning must be carried out with the changed data in PMT PLAN.

**Attention:** If the data is not verified or is not correctly verified by the user based on the actual circumstances, this has an impact on the planning. Changes may lead, among other things, to deviating quantities of material and deviating static requirements. This may lead to personal injury as well as financial losses for which PMT assumes no liability.

**4. In addition, which other technical requirements must always be observed by the customer and checked independently?**

**a. Technical requirements for the roof and its components**

PPMT PLAN assumes that the roof and its components are suitable for the installation of a photovoltaic system and that the customer has had this verified by an expert prior to planning.

PMT PLAN does not guarantee the compatibility of the PMT photovoltaic substructure with the roof in terms of roof covering, roof substructure and roof construction. Rather, this is to be checked by the user themselves.

Before installation, users must ensure that the functional

layers of the roof structure (e.g. waterproofing layer, thermal insulation layer) are suitable and designed for the installation of solar power systems. In particular, it must be ensured by the user that the suitability for use of the thermal insulation layer continues to exist despite the additional loads which arise as a result of the assembly of the solar power system (substructure and solar modules).

**Tip:** To do this, obtain the approval of the manufacturer of the individual components and verify the manufacturer's specifications with the conditions on site on the roof.

The user must check the suitability, load-bearing capacity and serviceability of the entire roof structure for the assembly of the solar power system as a whole.

A structural engineer must be consulted to check the loadbearing capacity. PMT-PLAN does not replace this check under any circumstances.

**Attention:** If the user does not check the compatibility of the photovoltaic substructure with the roof and/or does not check it properly, this will have an impact on the planning. Changes may lead, among other things, to deviating quantities of material and deviating static requirements. This may lead to personal injury as well as financial losses for which PMT assumes no liability.

**b. Static requirements**

PMT PLAN does not take into account the static requirements of the building on the roof of which the solar power system is to be built.

Building and roof statics must therefore be professionally checked by the user before assembly on his own responsibility.

A structural engineer must be consulted for this purpose. PMT-PLAN does not replace this check under any circumstances.

**Attention:** If the building statics are not checked or not checked correctly by the user, this has an impact on the planning. Changes can lead, among other things, to deviating quantities of material and deviating static requirements. This may lead to personal injury as well as financial losses for which PMT assumes no liability.

### **c. Photovoltaic modules**

PMT-PLAN enables planning with a variety of photovoltaic modules. However, due to the large number of photovoltaic modules available on the market, not all modules are stored in the database. Missing modules are added to the database on a separate request based on the module manufacturer's data sheet.

PMT does not guarantee that the module data is up to date. In particular, dimensions and weight parameters must be verified by the customer before planning.

PMT-PLAN only takes into account the dimensions and weight of the modules. Other parameters are not taken into account.

Therefore, please check the compatibility of the module with the substructure before assembly on the basis of the assembly guidelines of the module manufacturer.

PMT-PLAN requires that the module may also be used in the mounting form clamping on the short module sides. Therefore, please check whether the clamping points of the module comply with the manufacturer's specifications before assembly. If the connection points do not correspond to the specifications of the module manufacturer, it is recommended that the module manufacturer be contacted in order to obtain approval of the planning.

This approval can either be generally available as part of the module certification or possibly also be granted by the module manufacturer on a project-specific basis.

**Attention:** If the user does not clarify the compatibility of the substructure with the solar modules, this can lead to financial losses for which PMT accepts no liability.

### **d. Securing the solar power system against shifts due to thermal expansion (so-called "caterpillar effect")**

The solar power system is exposed to constant temperature fluctuations on the roof. This can lead to very slow downward movements of the substructure on the roof sealing over the course of the service life of the solar power system, even with a very flat roof pitch. This process is also referred to as "temperature migration" or more vividly as the "caterpillar effect".

The gradual displacement of the solar power system on the roof can lead to damage to the cabling, the roof covering (such as, for example, foil, bitumen, gravel, substrate, etc.) of the further functional layers and any rising components present (such as, for example, skylights, aeration and ventilation systems, drainage systems, chimneys etc.). In the worst case, the solar power system can gradually move beyond the roof edge over time.

To prevent this damage, we have worked with other industry participants to develop an advisory paper specifically on the topic of thermal migration effects of PV facilities. This issue is complex and, in addition to unknown parameters of the roofs (bonded foils, mechanically fastened foils, different types of insulation, use of the building...), the facility characteristics and the facility layout (length of the assembled module arrays, orientation of the module's longitudinal side to the roof pitch ...) are also relevant. We have carried out extensive tests of our own to determine the behaviour during temperature changes and the resulting adhesion forces. In addition, we have equipped facilities with load cells and GSM modems to measure and document the effect of "facility migration" in practice. Furthermore, we inspect many facilities on a regular basis.

Conclusion: There are a few facilities that show movement effects on roof surfaces with steeper slopes, and a much larger number of facilities, some with steeper roof slopes, that do not show this effect. For this reason, we have decided - based on the BSW advisory paper - to give a general recommendation of a connection starting at a roof pitch of 1.0°.

We can offer the necessary components on a project-specific basis. The introduction of the new expansion stage of the X118 system with EasyPlates and their mechanical fastening to the rails extends our recommendation for a connection to a flat roof from a gradient of approx. 2% (roof pitch approx. 1.15°), provided that the **PMT checklist** has been completed accordingly and taken into consideration when planning the facility. As each roof must be considered on a case-by-case basis due to individual, unknown parameters, we recommend the following procedure for the **maintenance routine**:

Maintenance interval	Shift	Measure
Annual maintenance	No shift	No need for action
annual maintenance	up to approx. 2 cm	Inspect the situation with special attention during the next maintenance
annual maintenance	2-3 cm	Intermediate inspection after approx. 6 months
Intermediate inspection (6 months)	further shift of 1.5 cm or more	subsequent mechanical connection

**Attention:** Failure to secure the solar power system against displacement due to thermal expansion may lead to personal injury as well as property and financial losses for which PMT assumes no liability.

**Attention:** For roof pitches of 5° or more, the flat roof mounting system must be securely anchored or fastened. Failure to do so may result in injury or loss of life, as well as damage to property and assets, for which PMT assumes no liability.

### Route connection

The connection of cable routes to the PMT substructure is not part of the structural calculation of the module fields in PMT PLAN. Consequently, the structural stability of the cable routes used must be ensured on site. The components provided by PMT for supporting and connecting the cable routes to the PMT substructure (description: "Route Support" and "Adapter to Tower") are solely intended to provide support for the cable routes/cable trays used on site.

The Adapter to Tower component has a designated breaking point to ensure that no forces that could endanger structural stability are transferred to the PMT substructure. Before any such forces can be transferred to the PMT substructure, an intentional material failure is induced in the Adapter to Tower component. This means that the component will break to prevent compromising the stability of the main substructure.

# Assembly Instructions and Maintenance

## Assembly instructions

**Assembly should not begin until the construction manager's written instructions have been received.**

The components of PMT's installation system are used exclusively for fastening PV modules. Depending on the type of roof on the building and the characteristics of the roof, the components intended for this purpose should be used. The exact item details can be found in the project documents, consisting of the project report and the CAD plan.

When using the assembly system, it is essential to observe the assembly instructions, safety instructions and system instructions.

In the event of improper use of the components, noncompliance with the notes and the use of components not belonging to the system, all warranty, guarantee and liability claims against PMT are void. The user is liable for damage and consequential damage to other components, PV modules or the building, as well as for personal injury.

Before starting the assembly, the compatibility between the roof skin and the assembly system must be tested and ensured and the roof checked for damage of any kind. These must be recorded in the **Roof Inspection Protocol**. Repair work may be necessary.

In the case of very uneven roofs or roof seals, compensation measures must be taken if necessary to ensure uniform load introduction. In order to ensure a flat support of the main bottom profiles on the roof skin, the roof surface must be cleaned before construction begins and impurities, such as moss, leaves, dirt, stones, etc. removed.

The necessary distances to the roof edges specified in the project documents must be observed. The maximum module field size depends on the type of roof. In the case of roofs with substrate or gravel fill, it must be ensured that a sufficiently non-slip connection is made.

The surface load must not exceed the residual load-bearing capacity of the building. It must be ensured that the runoff of rainwater is not hindered. Roof drainage must be included in the assembly planning.

It must be checked whether lightning protection provisions have to be changed and reworked as a result of the assembly of the PV system. A thermal separation (distance between module fields) must be maintained according to the PMT PLAN project documents.

**Attention:** If the actual module dimensions exceed the module widths specified in the table, assembly must not be started.

The specified tightening torques in these assembly instructions must be strictly observed.

After events such as storms, heavy rain, earth movements, etc., the system must be checked by a specialist for damage. If damage is detected during the inspection, these must be remedied immediately. Defective components must be replaced by new components.

## Maintenance

Photovoltaic substructures are not maintenance-free. Maintenance, in particular of the correct positioning of the ballast stones and the building protection mats, must be carried out annually and documented in a maintenance log. Furthermore, all components of the PMT mounting system must be checked at regular intervals and documented accordingly. We recommend annual maintenance as per our **Maintenance Protocol**.

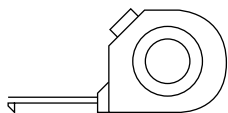
The recommendations for maintenance routines of the PMT X118 system due to thermal expansion must be observed.

After exceptional strong-wind events, we recommend maintenance immediately after the strong-wind event.

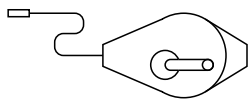
**Attention:** Failure to maintain the assembly may lead to personal injury as well as financial losses for which PMT assumes no liability.

# Required Tools

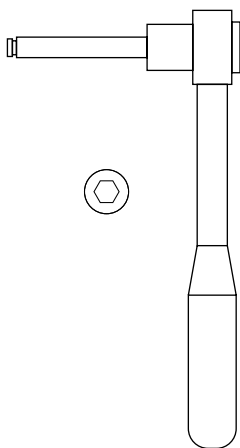
1 Tape measure



2 Chalk line



3 Torque-wrench with attachment  
Hexagon socket SW 6 mm



4 Assembly aid  
(optional tool)



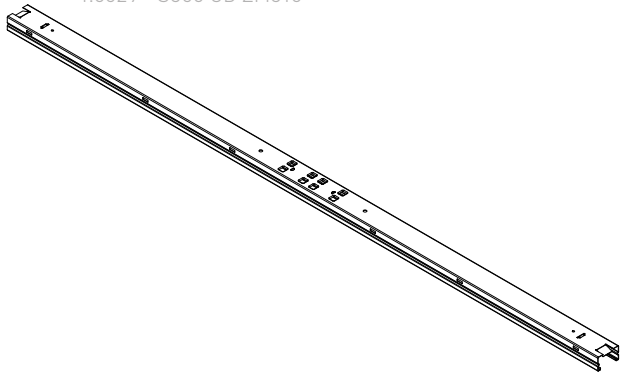


**Attention!** Some components are available in different lengths and versions.  
The exact article versions can be found in the project documents.

## Component Types

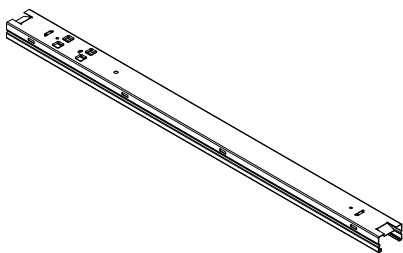
### A Swift Rail

1.0529 - S350 GD ZM310



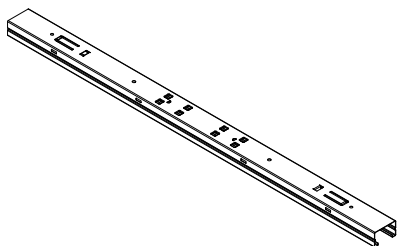
### B Swift Rail Short

1.0529 - S350 GD ZM310



### C Swift Connector

1.0529 - S350 GD ZM310

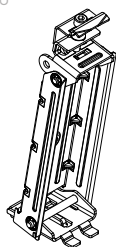


### D Summit Single

1.0529 - S350 GD ZM310

1.0531 - S550 GD ZM310

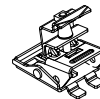
1.4301 - S235



### E Pivot Single

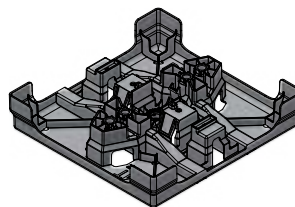
1.0531 - S550 GD ZM310

1.4301 - S235



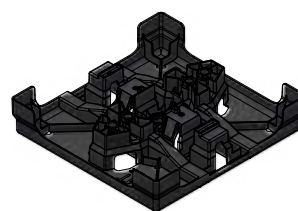
### F EasyPlate Connection (iron gray)

PE-HD GF 20

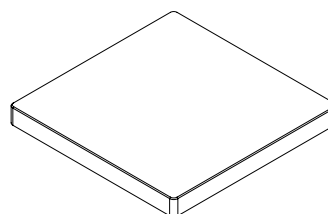


### G EasyPlate Support (black)

PE-HD GF 20



### H Ballast stone with the standard dimensions 40 × 40 × 4 cm (not included in delivery)



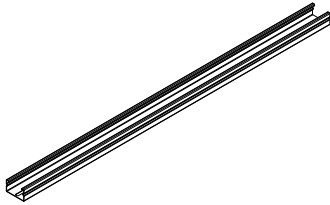


**Attention!** Some components are available in different lengths and versions.  
The exact article versions can be found in the project documents.

# Component Types

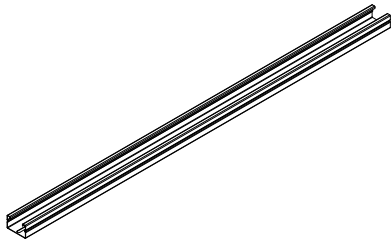
## I Row Connector

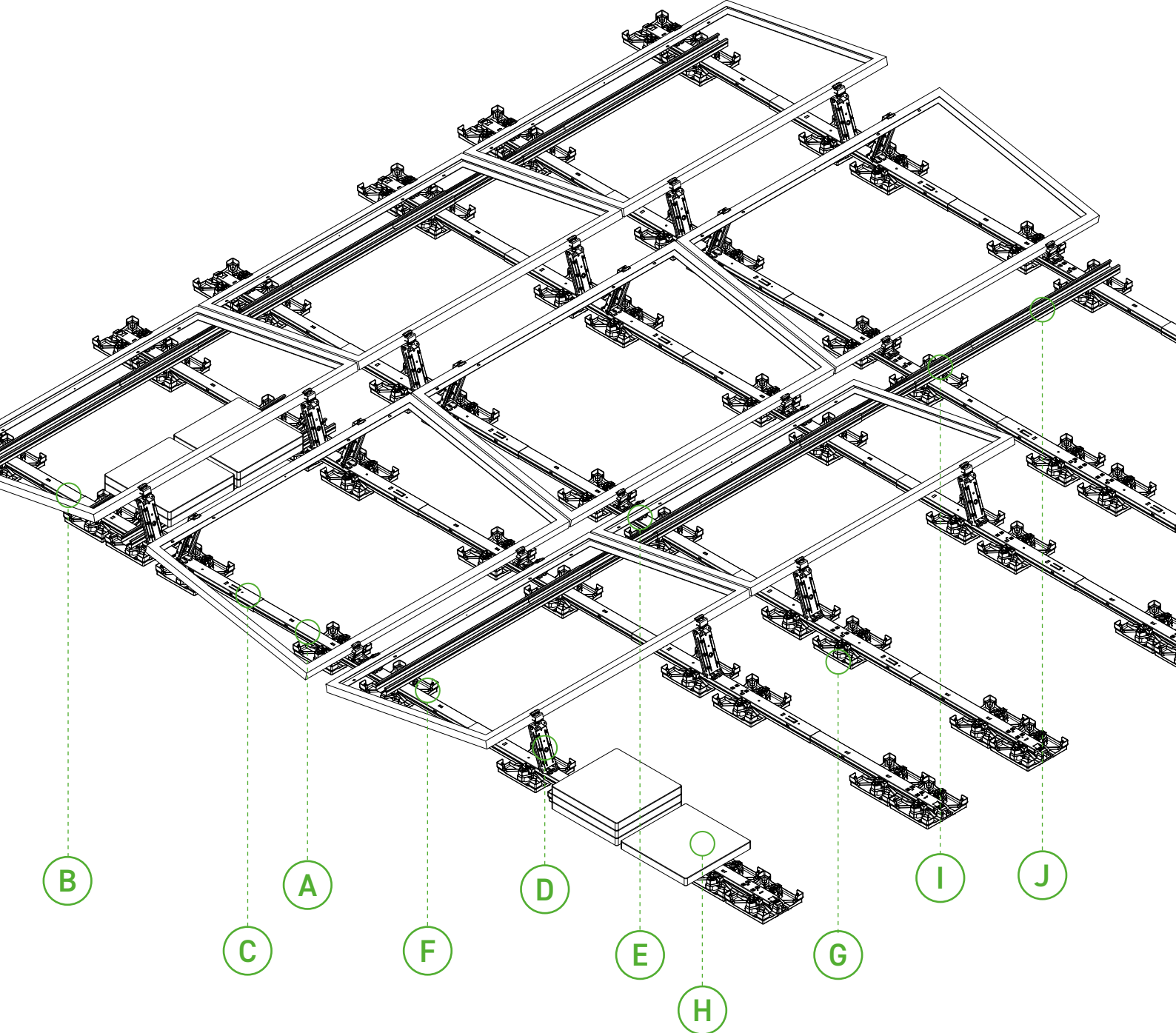
1.0529 - S350 GD ZM310



## J Row Link

1.0529 - S350 GD ZM310





**A** Swift Rail

**B** Swift Rail Short

**C** Swift Connector

**D** Summit Single

**E** Pivot Single

**F** EasyPlate Connection

**G** EasyPlate Support

**H** Standard ballast stone

**I** Row Connector

**J** Row Link

**Swift Connection** = Connection of Swift Rail and Swift Connector

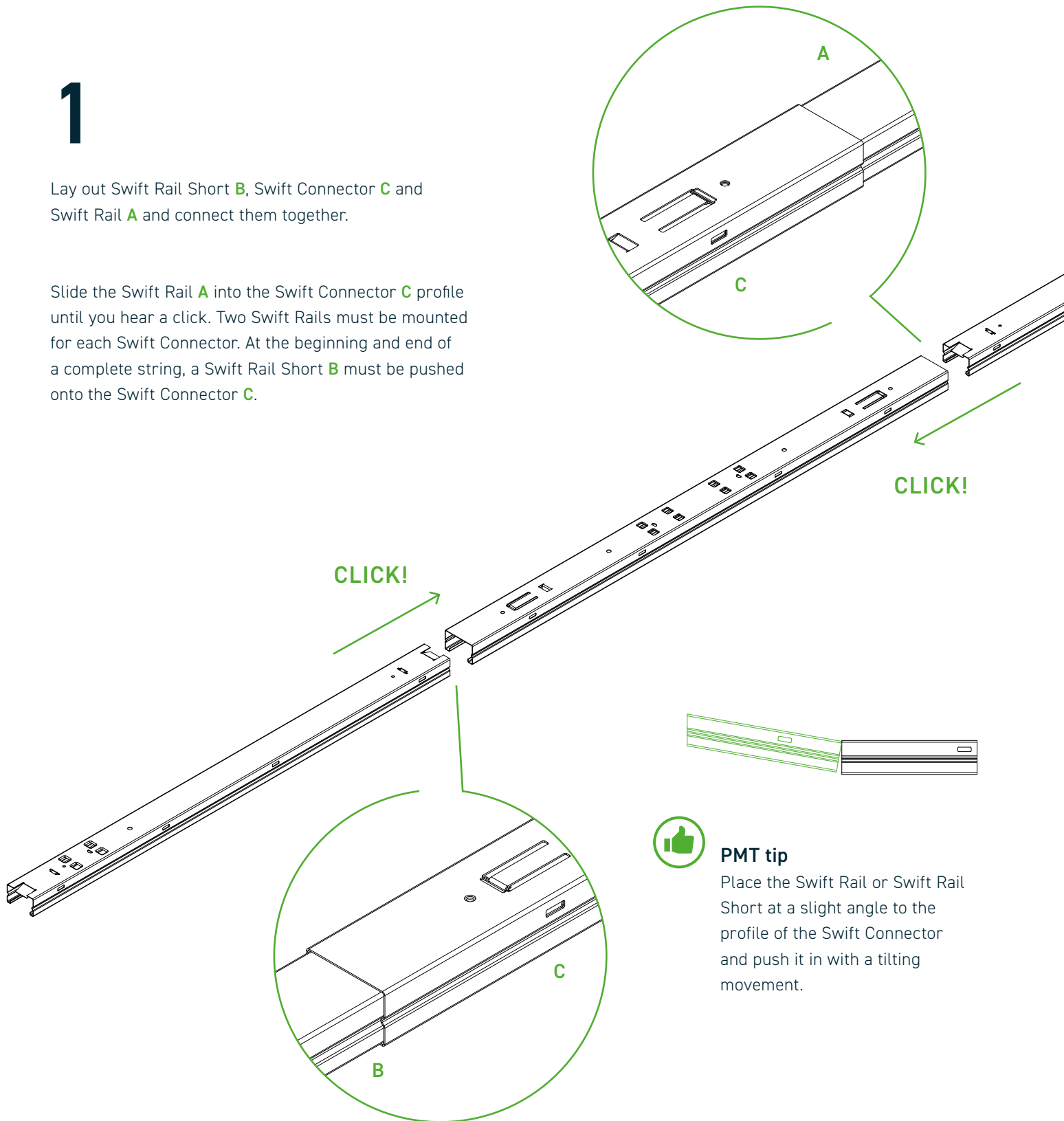
**Row Connection** = Row Connector/Link to connection of Swift Connection rows



# 1

Lay out Swift Rail Short **B**, Swift Connector **C** and Swift Rail **A** and connect them together.

Slide the Swift Rail **A** into the Swift Connector **C** profile until you hear a click. Two Swift Rails must be mounted for each Swift Connector. At the beginning and end of a complete string, a Swift Rail Short **B** must be pushed onto the Swift Connector **C**.



## PMT tip

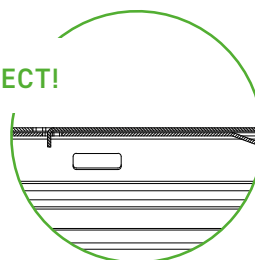
Place the Swift Rail or Swift Rail Short at a slight angle to the profile of the Swift Connector and push it in with a tilting movement.



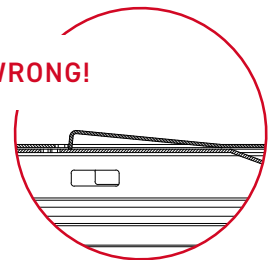
## Attention!

Check the snap-lock joint for strength and to ensure it fits perfectly.

## CORRECT!

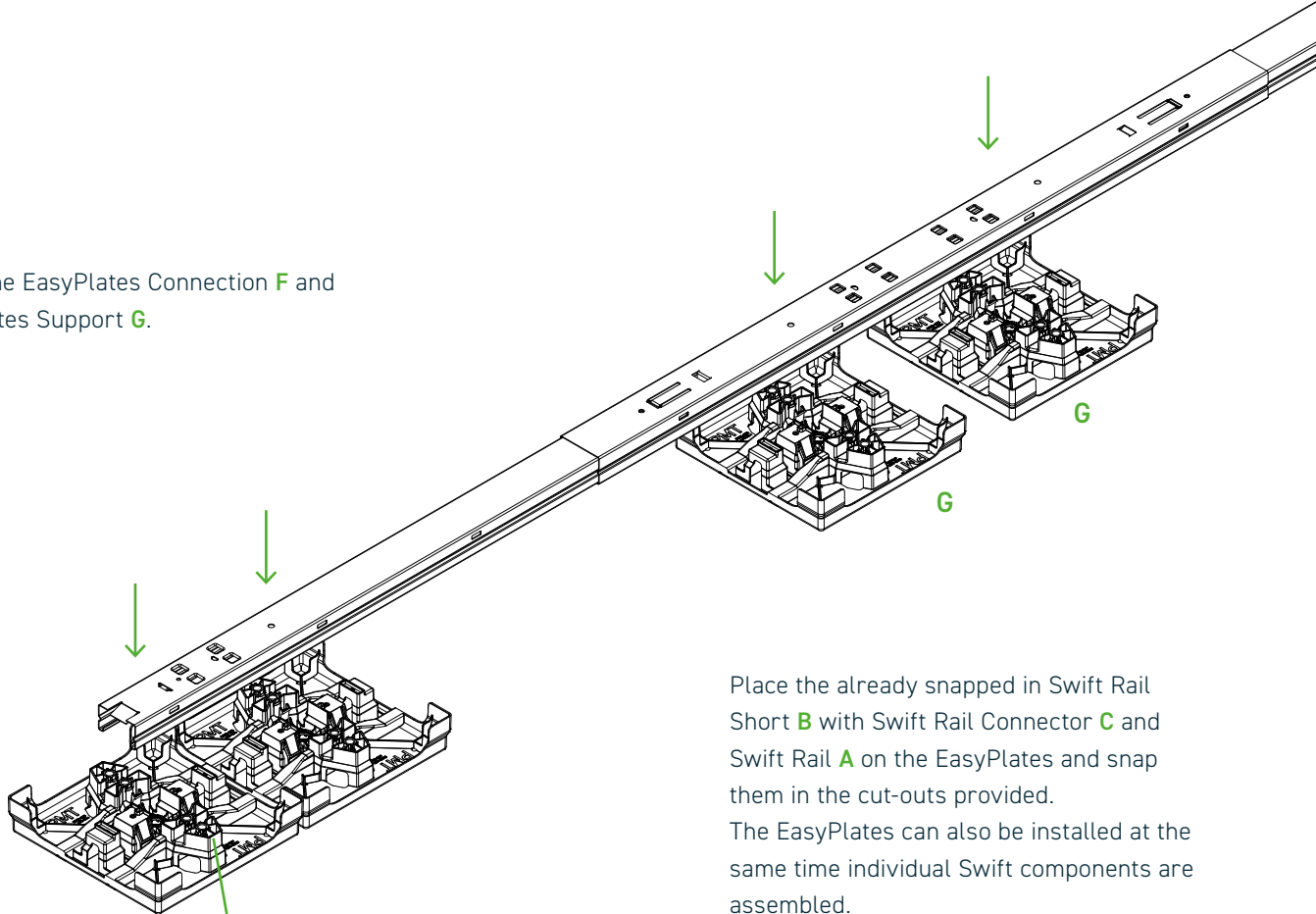


## WRONG!



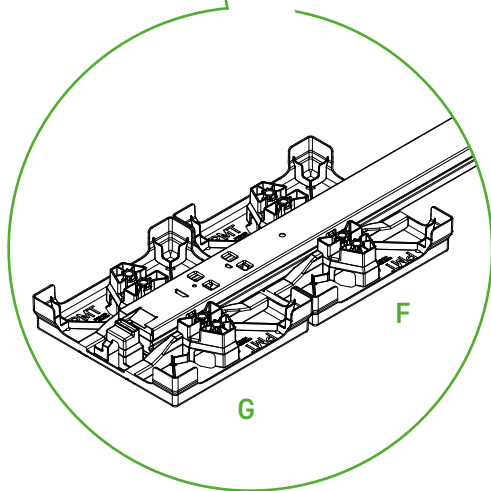
# 2

Assemble the EasyPlates Connection **F** and the EasyPlates Support **G**.



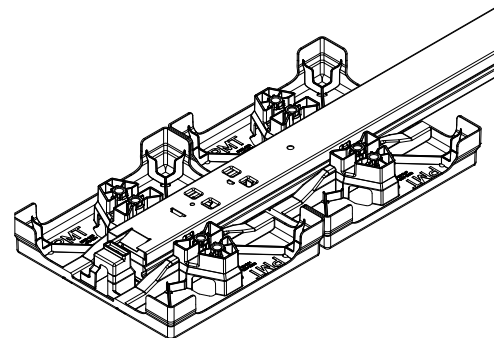
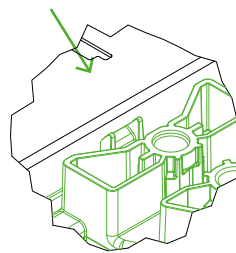
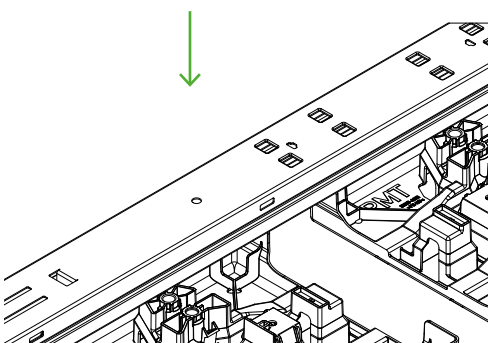
Place the already snapped in Swift Rail Short **B** with Swift Rail Connector **C** and Swift Rail **A** on the EasyPlates and snap them in the cut-outs provided. The EasyPlates can also be installed at the same time individual Swift components are assembled.

Consult the current project report for the exact assembly of the EasyPlates Connection **F** and the EasyPlates Support **G**.



### Attention!

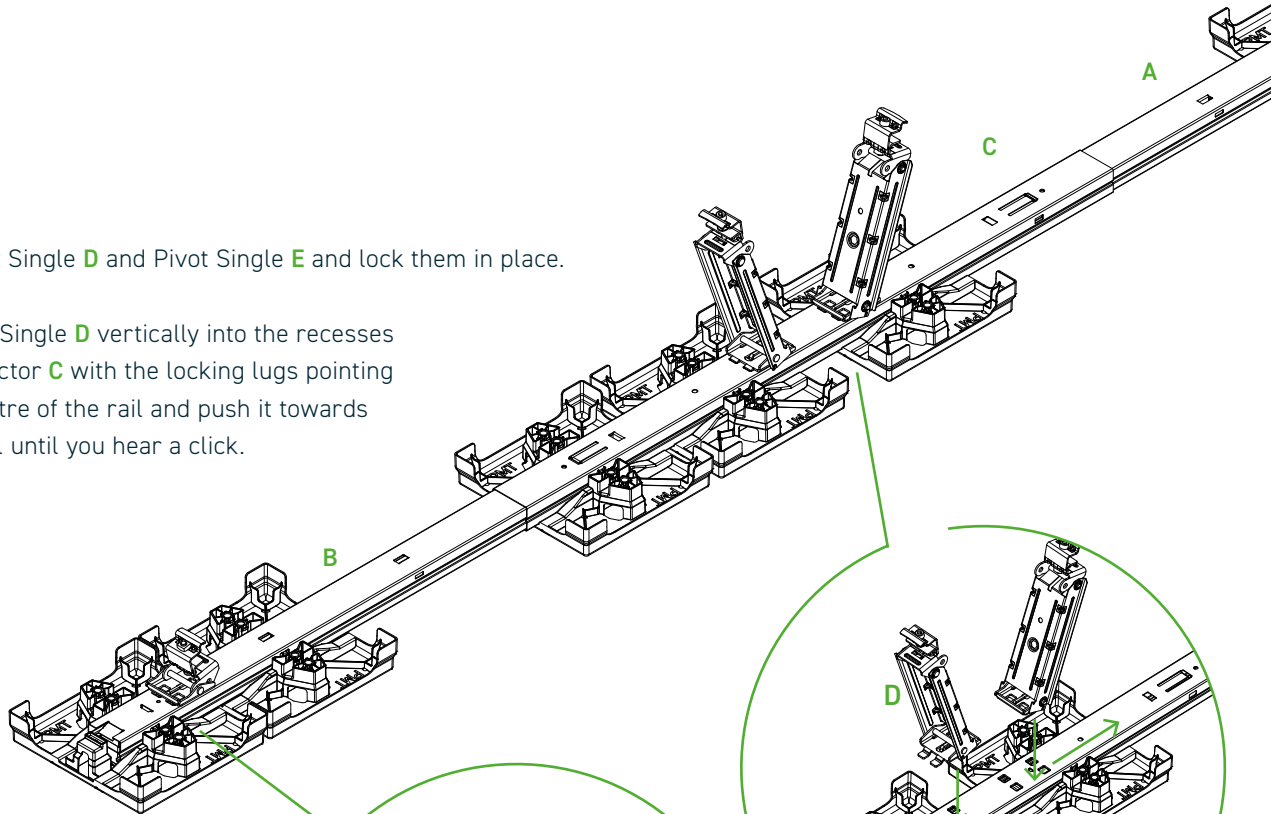
Ensure that the locking lug is appropriately locked to the Swift Rail, Swift Rail Short or Swift Connector.



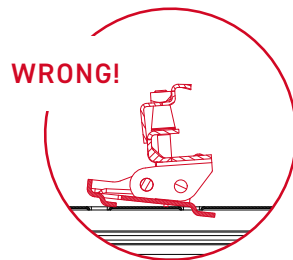
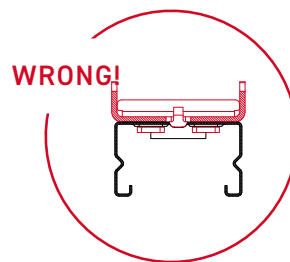
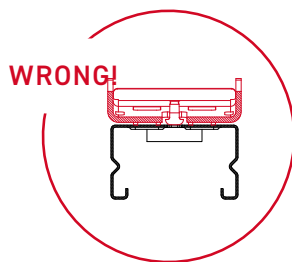
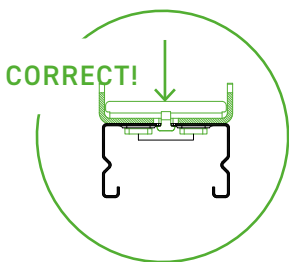
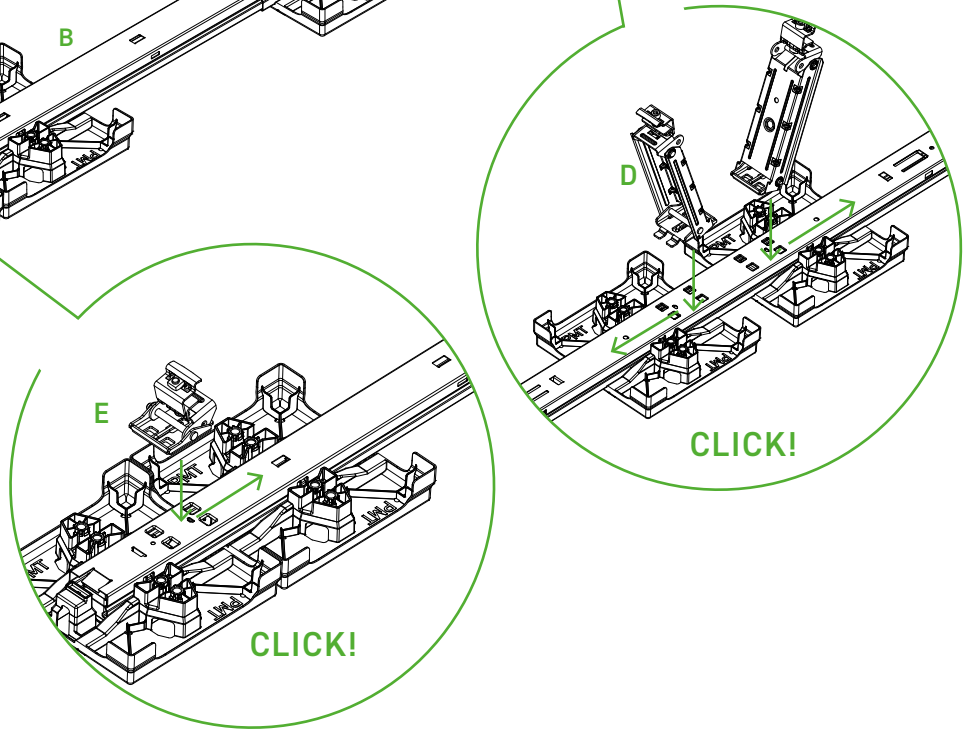
# 3

Put on the Summit Single **D** and Pivot Single **E** and lock them in place.

Press the Summit Single **D** vertically into the recesses of the Swift Connector **C** with the locking lugs pointing away from the centre of the rail and push it towards the edge of the rail until you hear a click.



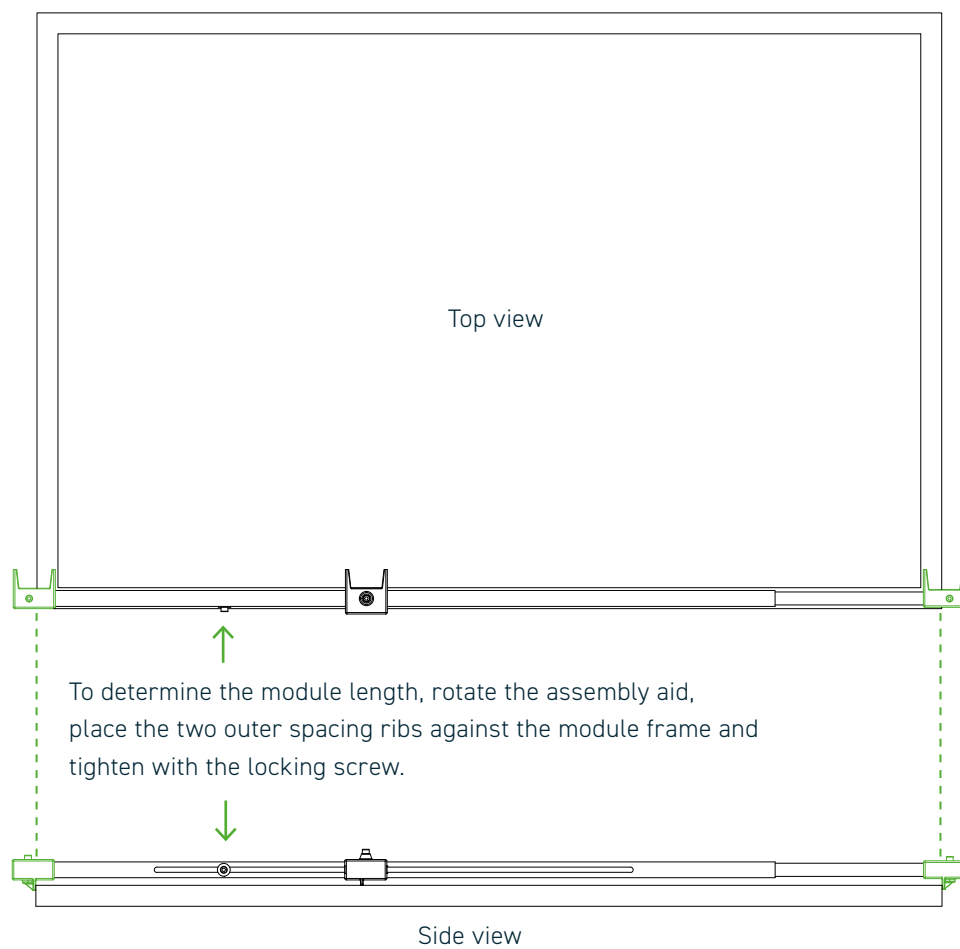
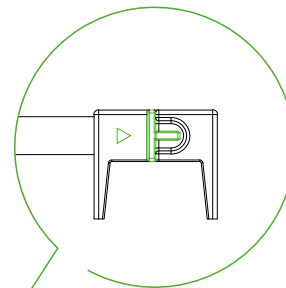
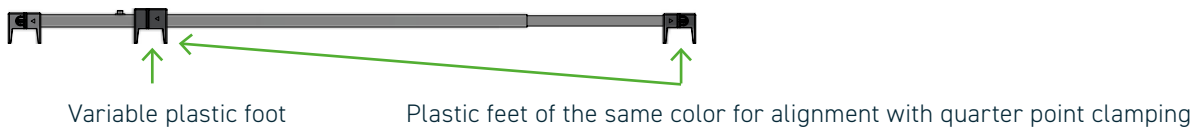
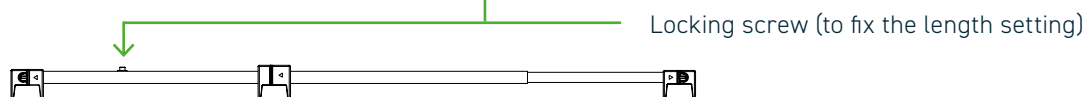
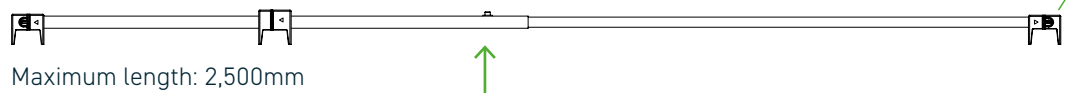
Press the Pivot Single **E** with the locking lugs vertically into the recesses of the Swift Rail Short **B** and push it towards the middle of the rail until you hear a click. With Swift Rail **A**, the Pivot Single **E** must be placed with the locking lugs pointing away from the centre of the rail and locked in place.



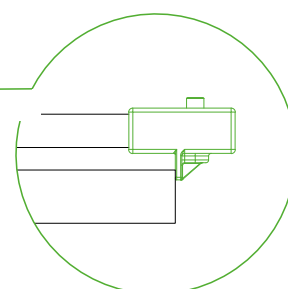
## Attention!

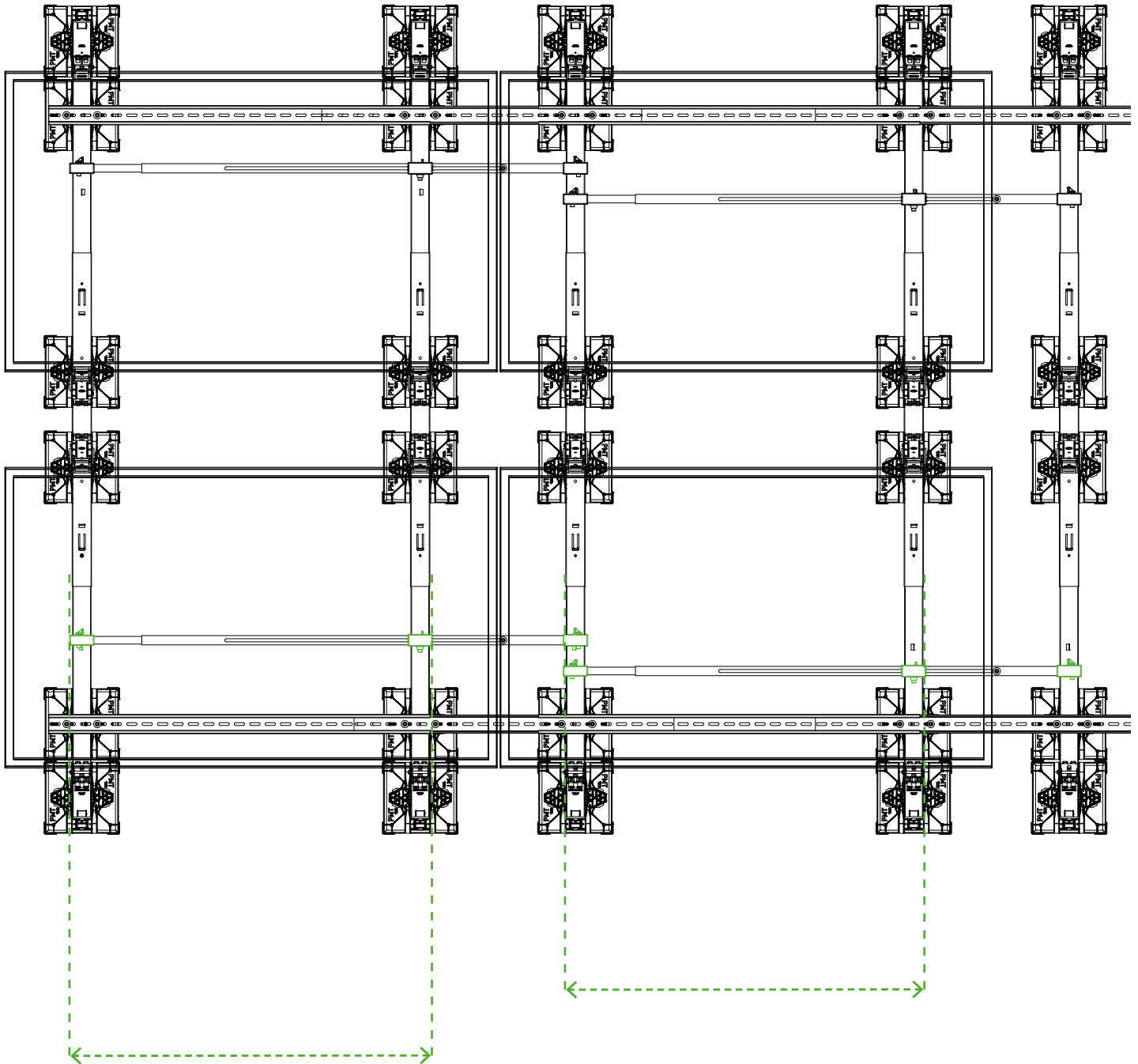
Check the snap-lock joint to ensure it fits perfectly. When assembling, ensure that all 4 locking tabs are inserted into the recess provided and that the hammer head engages in the corresponding T-recess. Apply light pressure to the hammer head to ensure that it assumes its final position.

Adjusting the assembly aid based on the module length.



To determine the module length, rotate the assembly aid, place the two outer spacing ribs against the module frame and tighten with the locking screw.





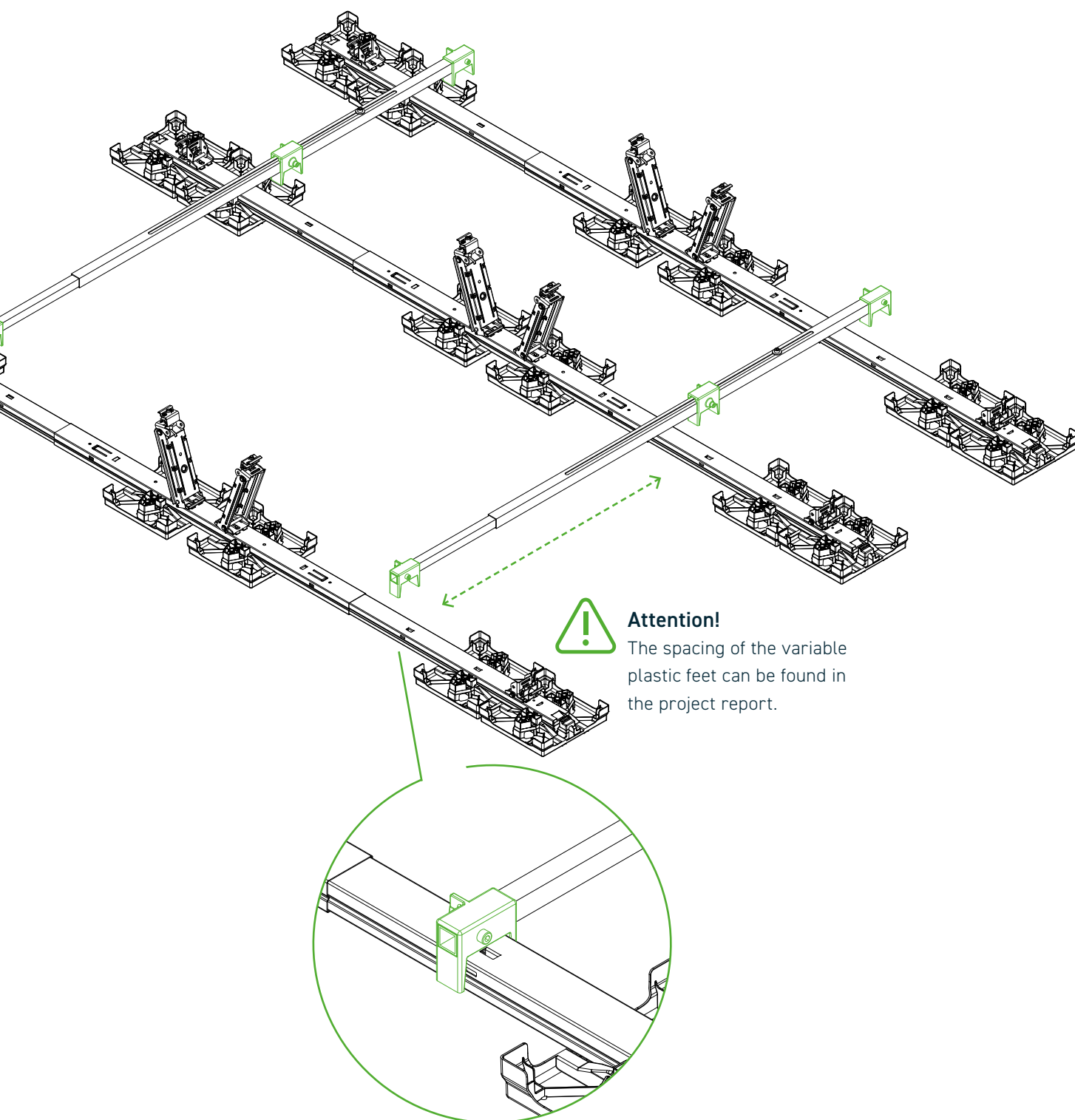
### Attention!

The spacing of the variable plastic feet can be found in the project report.

# 4.1

Adjusting the assembly aid using the project report.

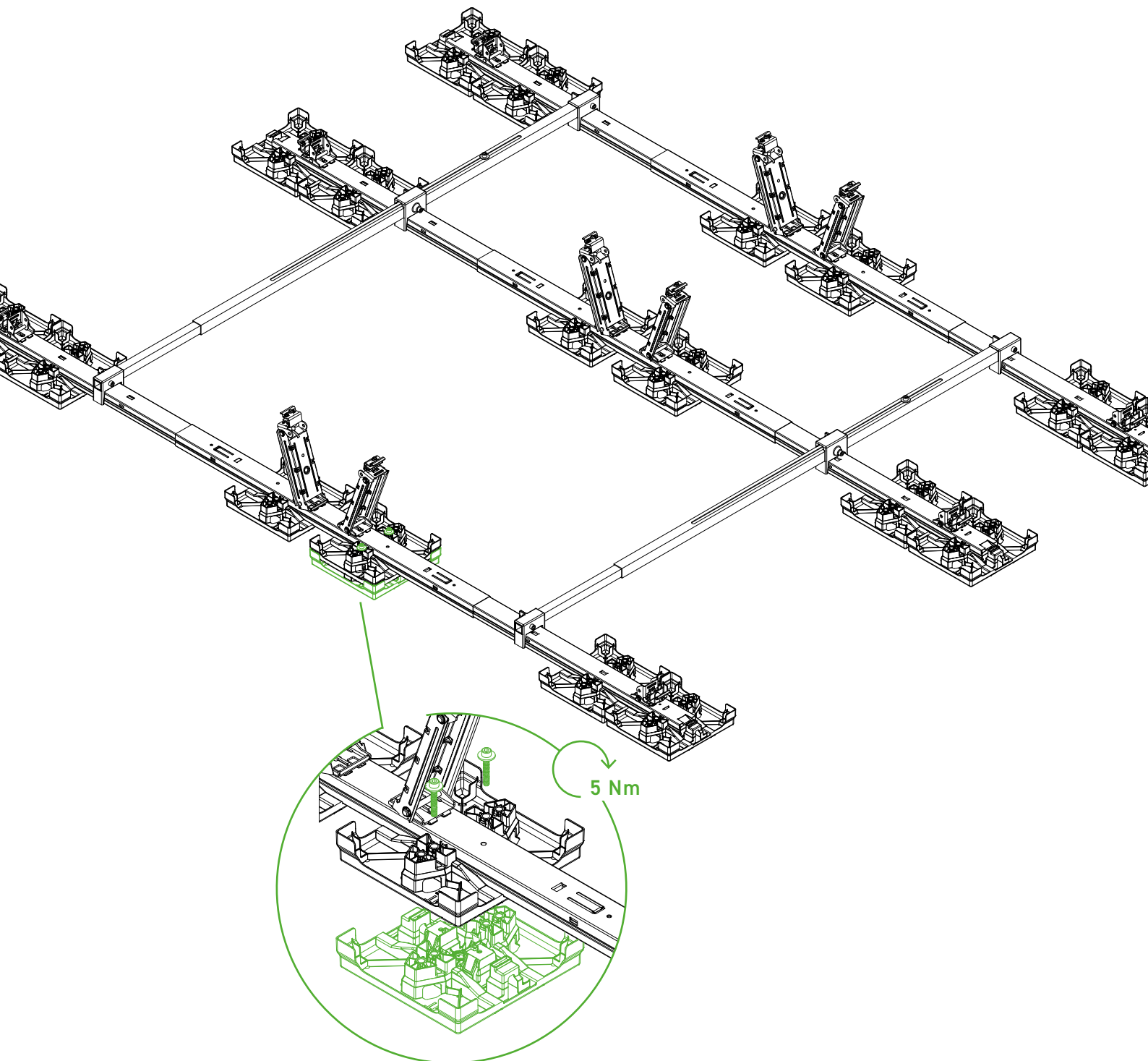
The distance between the two black plastic feet can be found in the project report and set on the center adjustable black plastic foot.



## 4.2

If the roof is uneven, a maximum of one EasyPlate Connection **F** can be placed under one EasyPlate Support **G** to even it out.

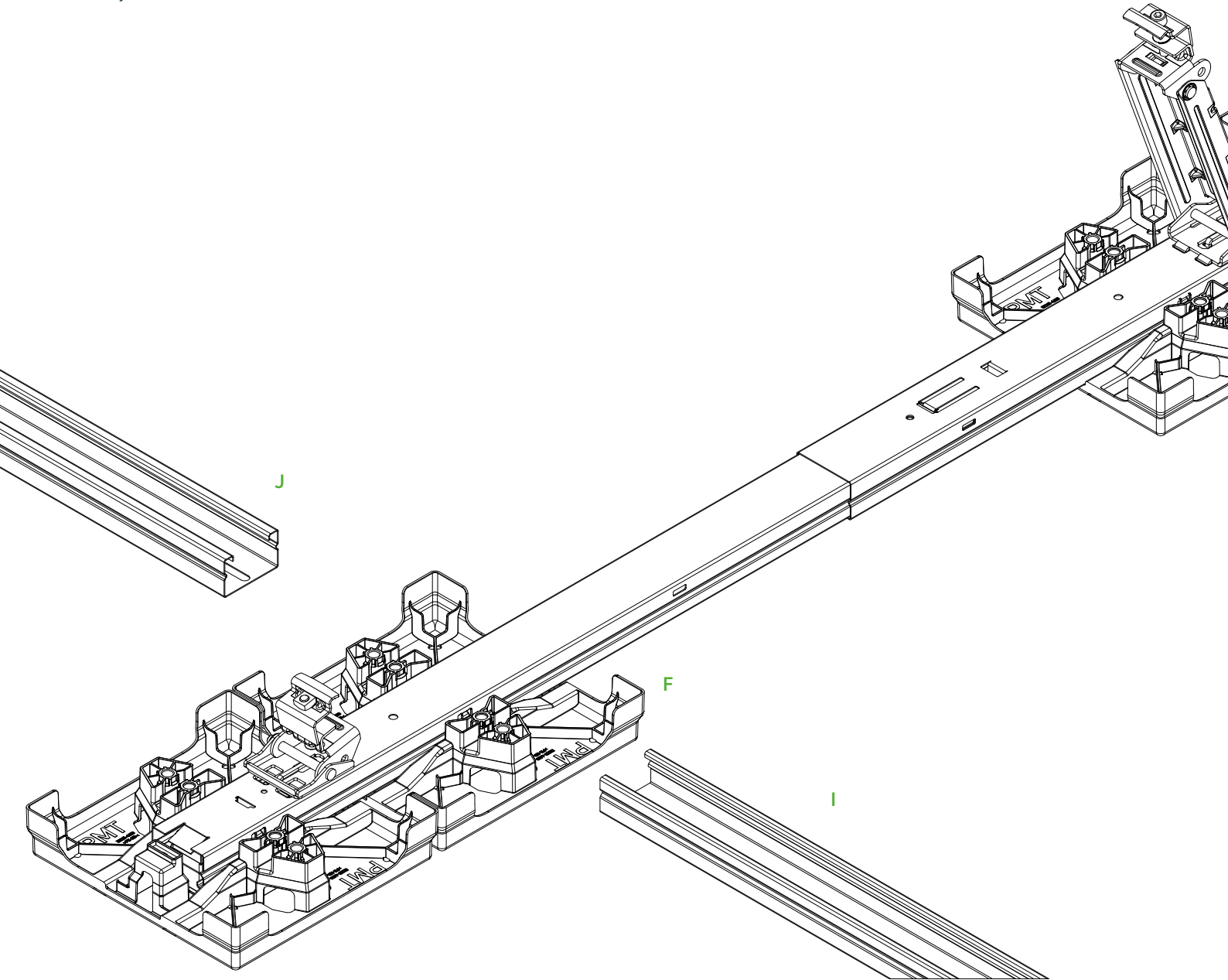
These are to be connected with a cylinder head screw DIN EN ISO 4762 - M8x50-A2.





# 4.3

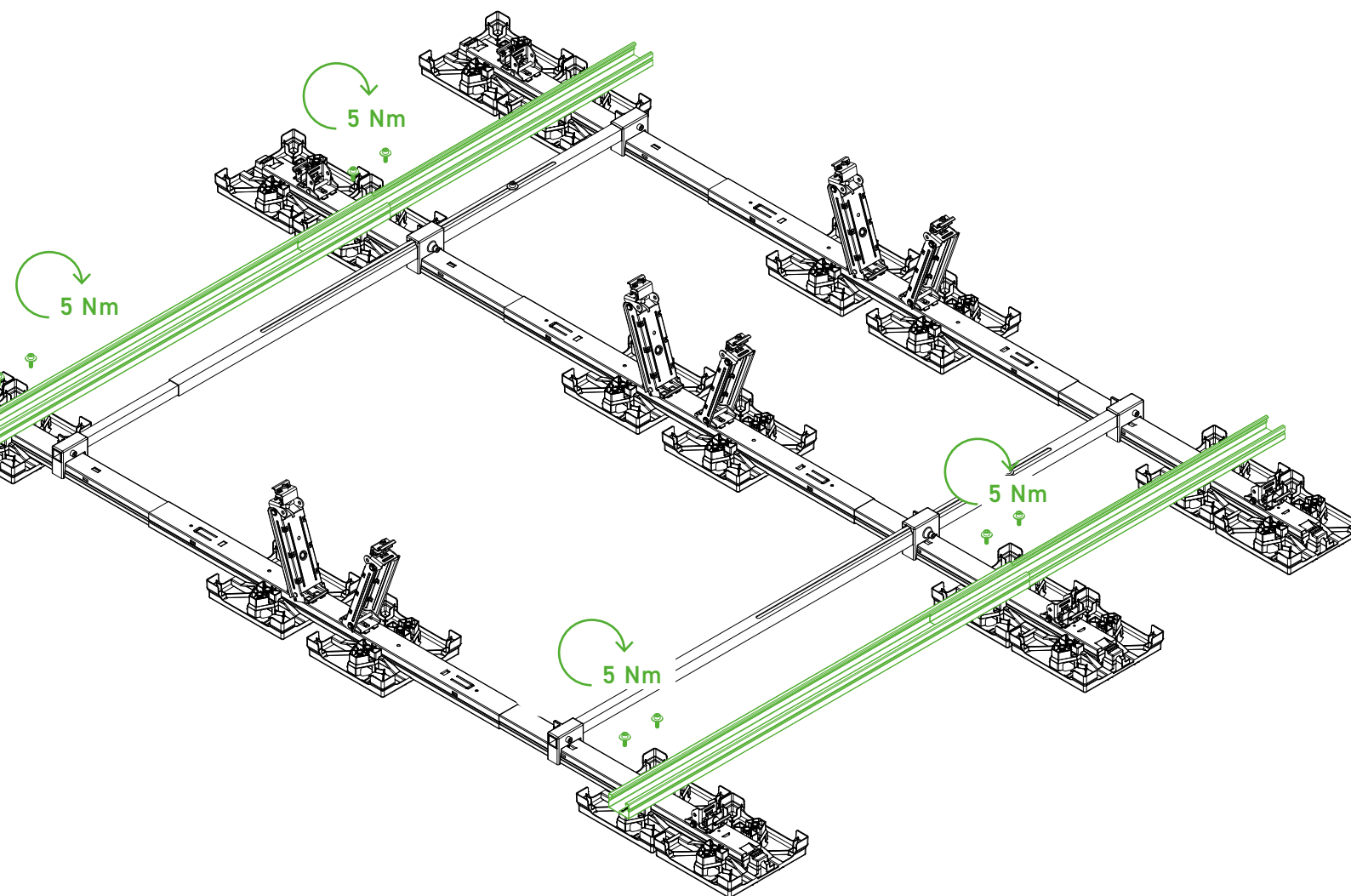
Slide Row Link **J** into Row Connector **I**, place on EasyPlate Connection **F** and mount.



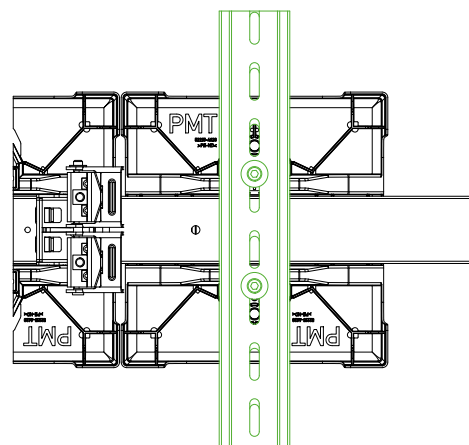


# 4.4

Screw the Row Connector and Row Link to the Swift Connection after alignment.

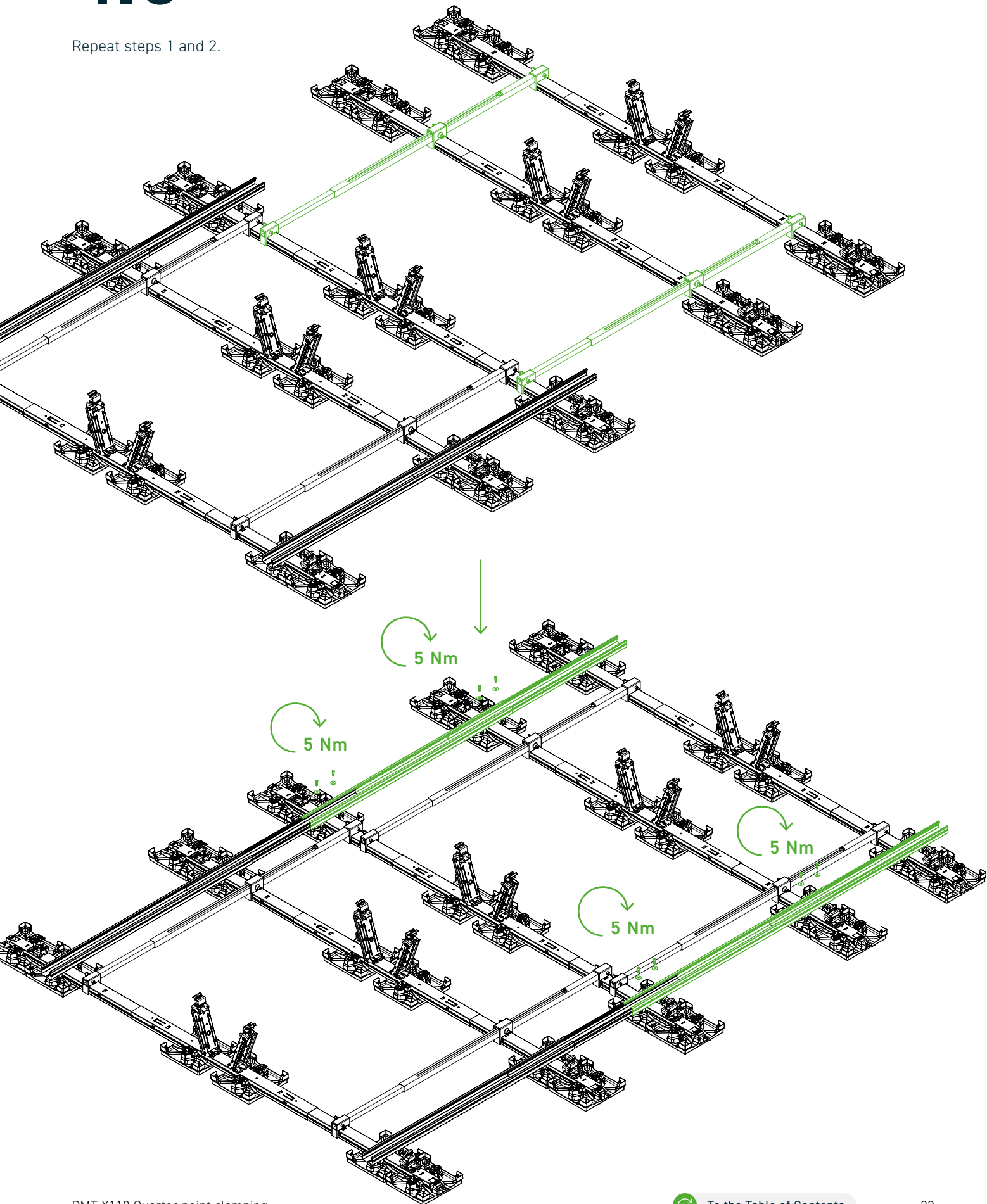


Row Connector **I**, Row Link **J** and EasyPlate Connection **F** must be mounted at the specified locations in accordance with the project report.

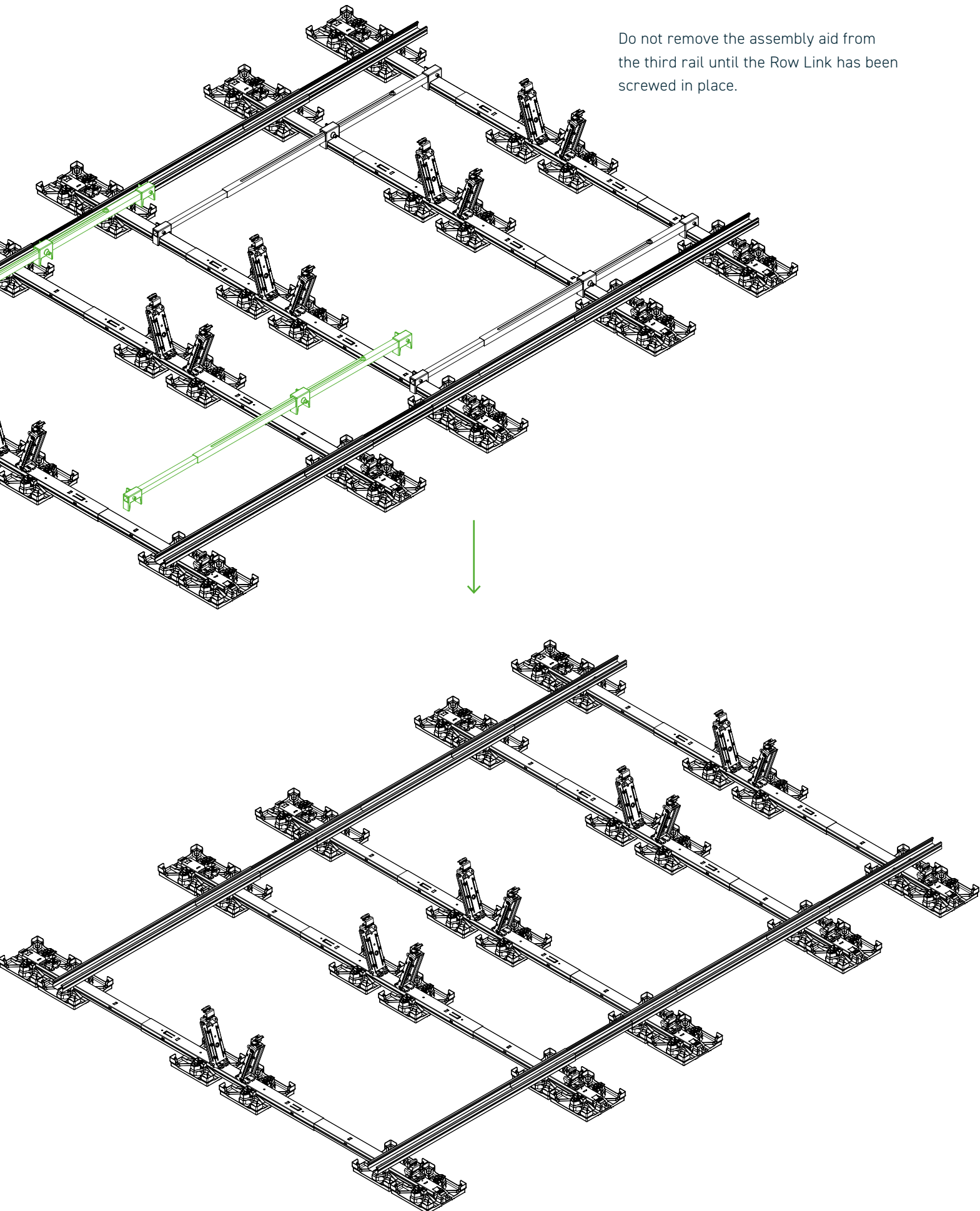


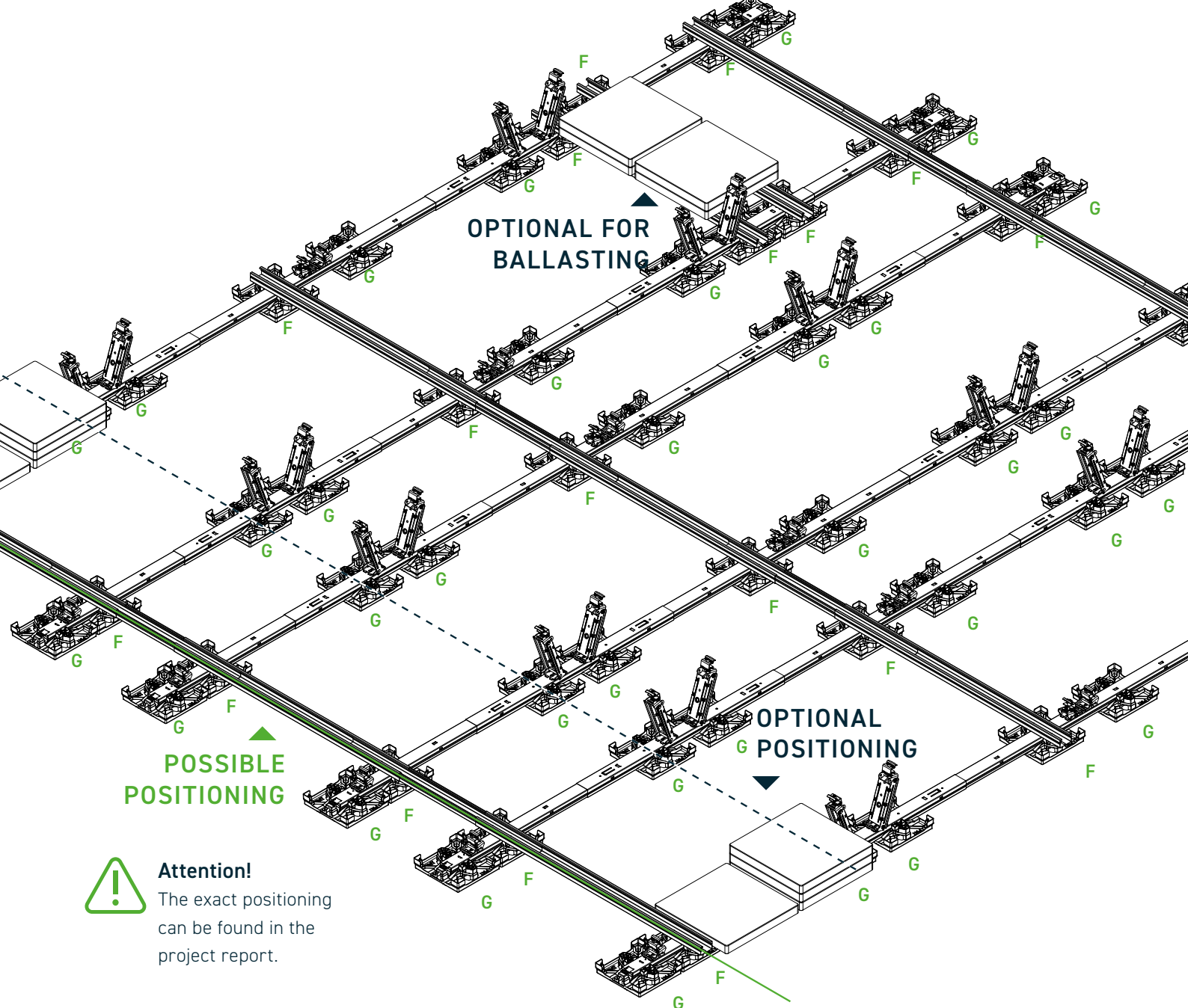
# 4.5

Repeat steps 1 and 2.



Do not remove the assembly aid from the third rail until the Row Link has been screwed in place.





#### Attention!

The exact positioning can be found in the project report.



#### NOTE

Please always refer to the current project documents for the exact location / position of the Row Connector **I**, Row Link **J** and EasyPlate Connection **F**.

Row Connector **I** and Row Link **J** must always be mounted once per double module on a pivot and at the end of a system. Ensure that the assembly is always carried out on the same side of the single module unit.

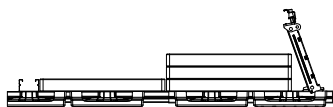
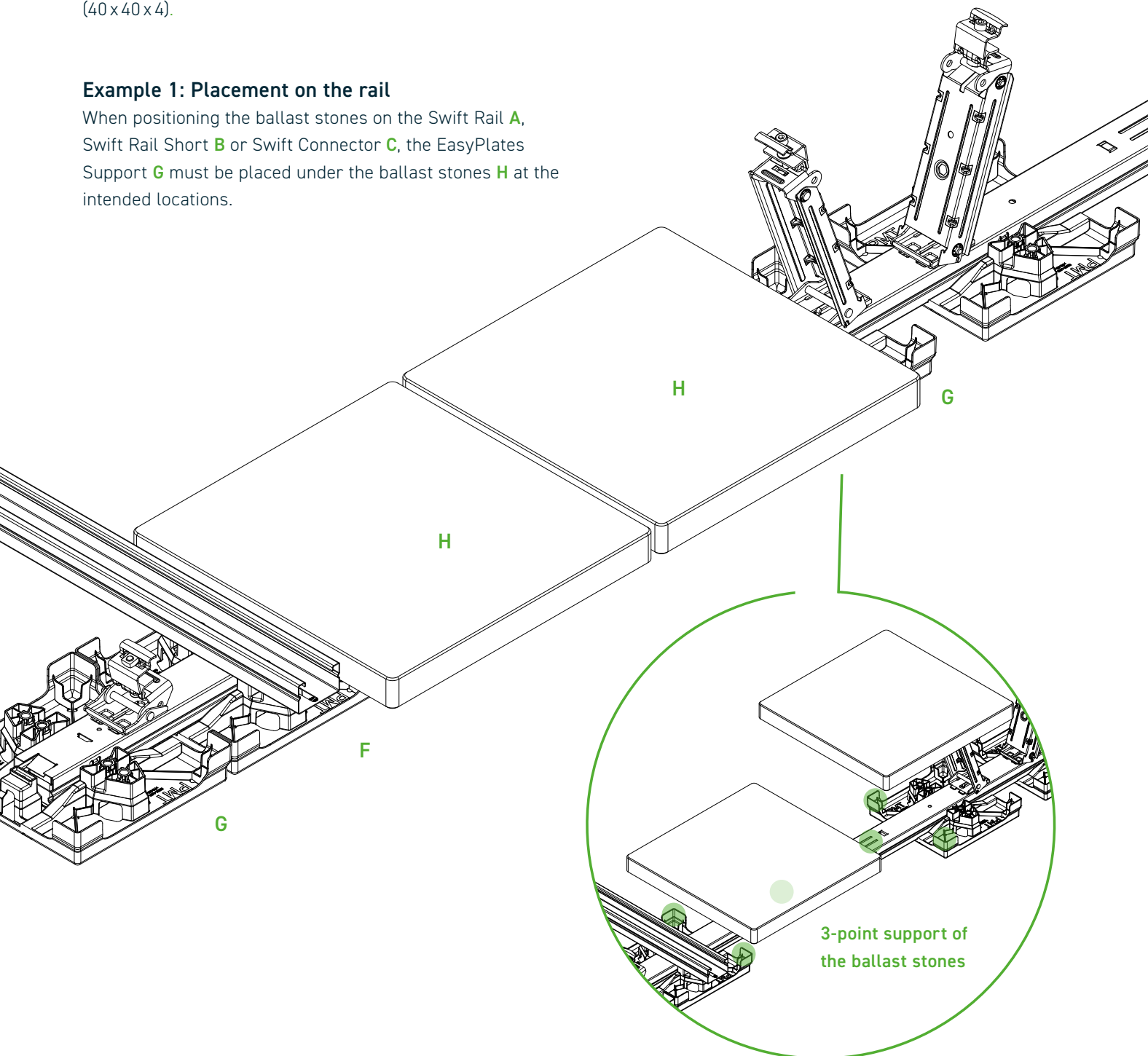


# 5

Options for ballasting using the example of a ballast stone **H** (40x40x4).

## Example 1: Placement on the rail

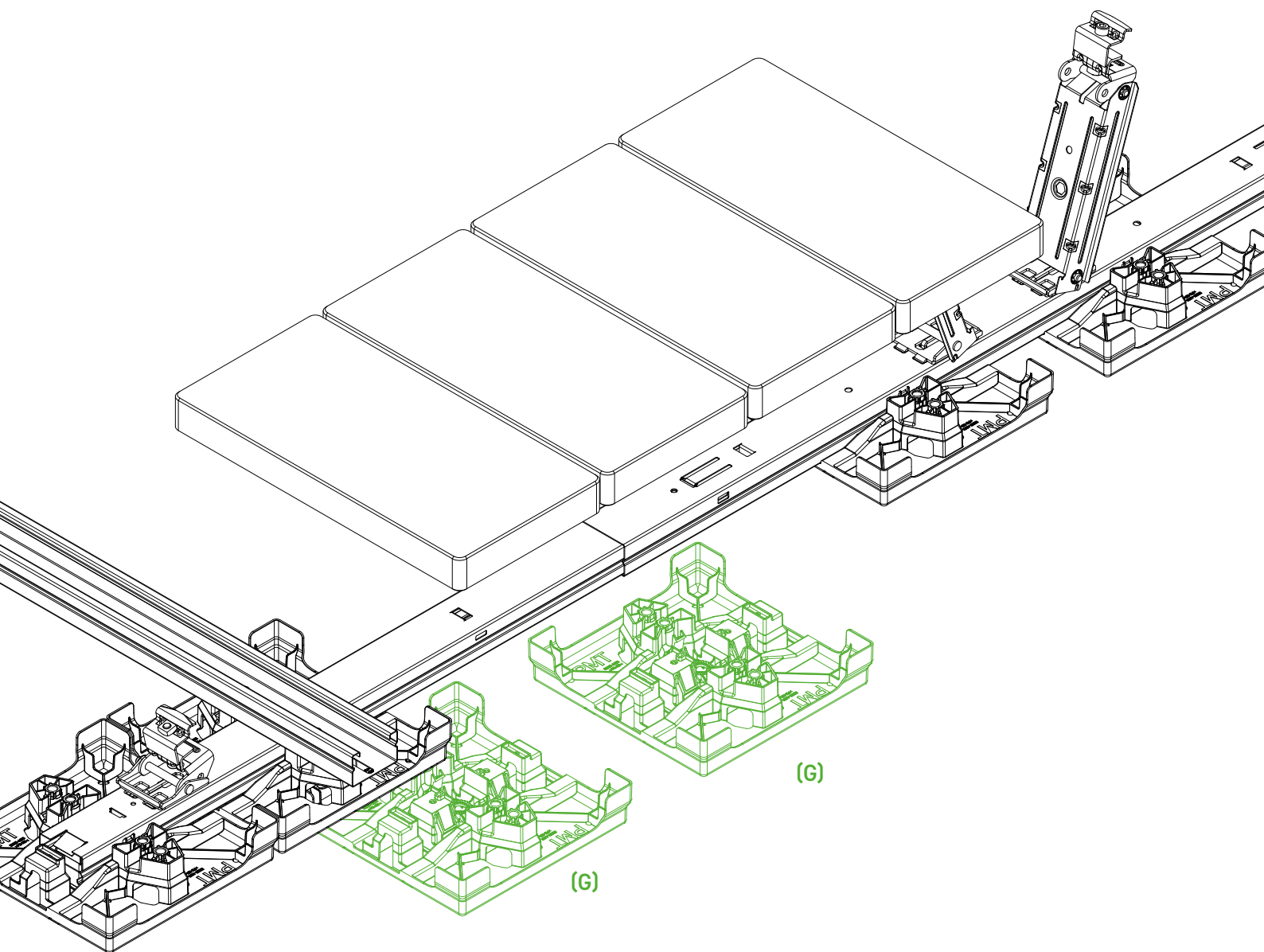
When positioning the ballast stones on the Swift Rail **A**, Swift Rail Short **B** or Swift Connector **C**, the EasyPlates Support **G** must be placed under the ballast stones **H** at the intended locations.

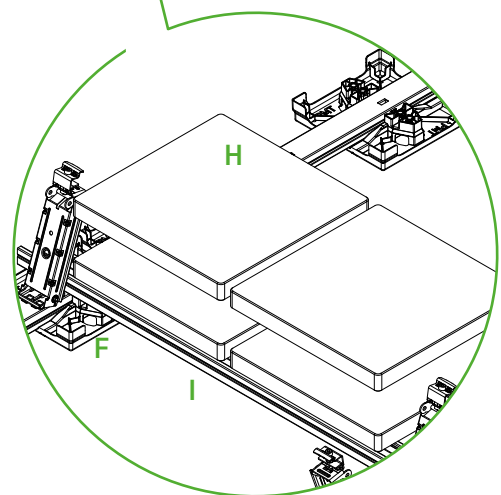
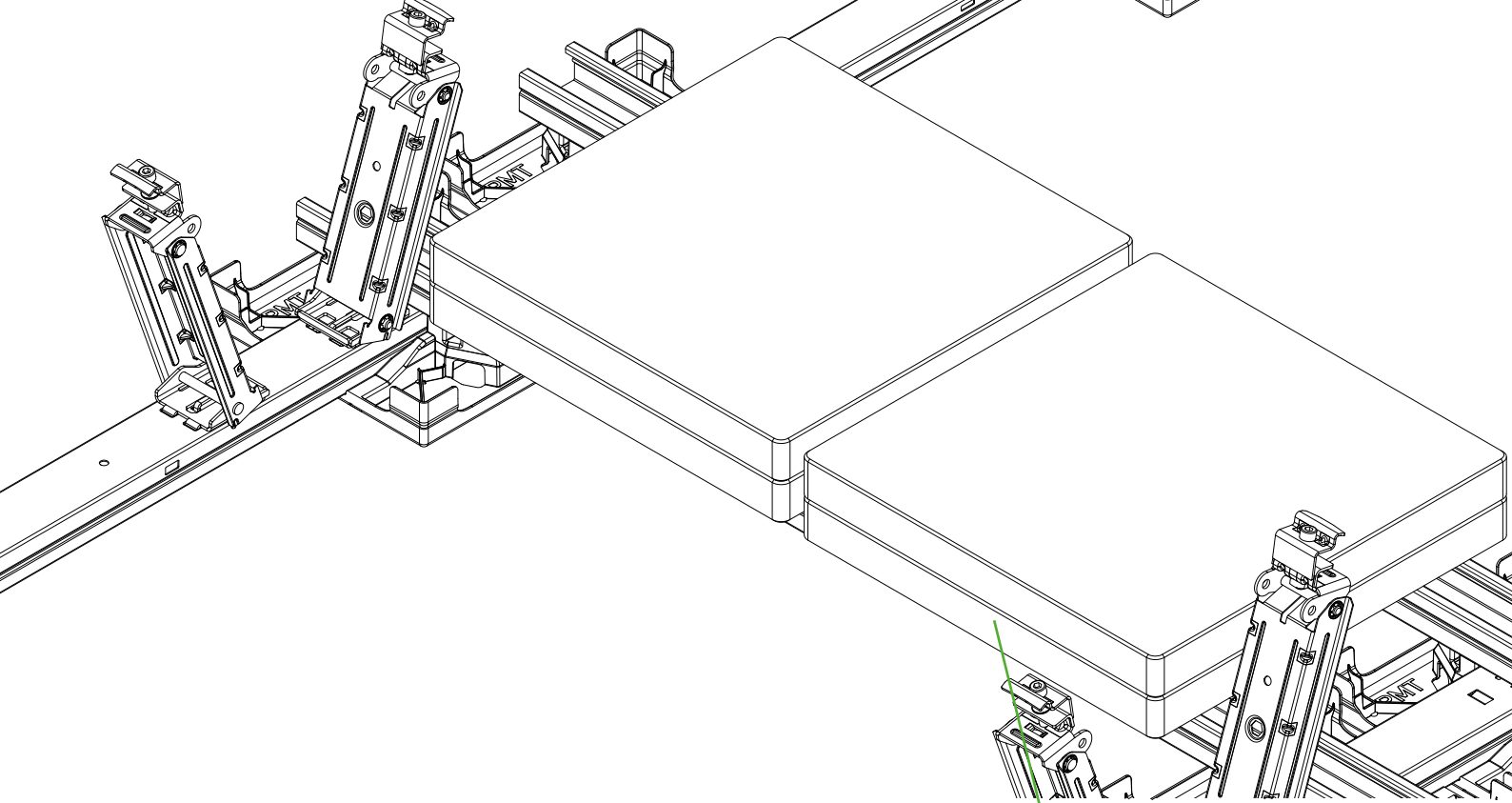


### Attention!

It must be ensured that the ballast stone has at least the 3-point support shown. See the current project report for the number of the EasyPlate Support.

Optionally, depending on the insulation and size of the ballast stones, more EasyPlates Support (G) can also be installed.





## Example 2: Placement on Row Connector / Row Link

With this placement variant, Row Connector **H** and Row Link **I** are additionally mounted within the system on which the ballast stones are placed.

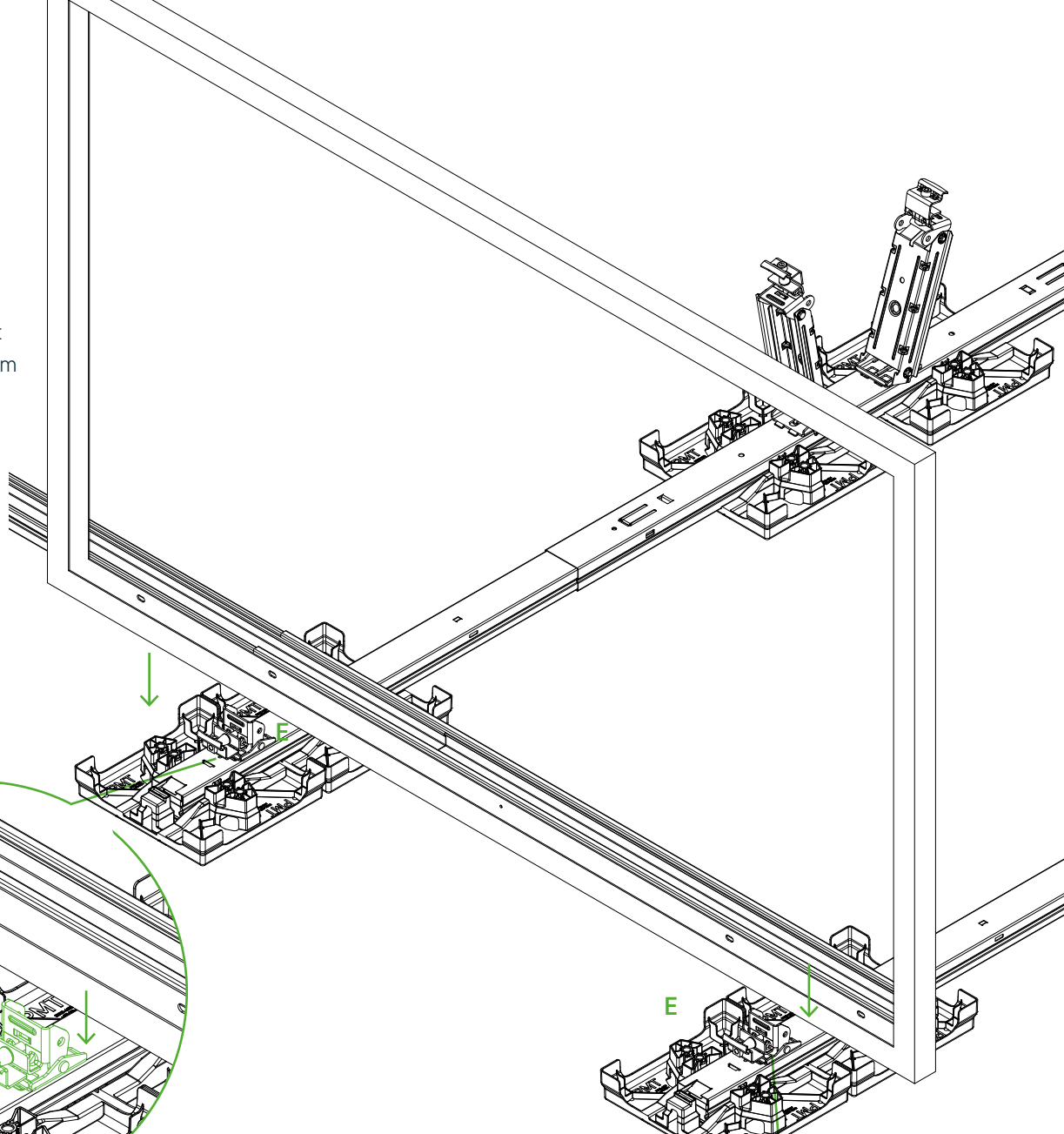


### Note

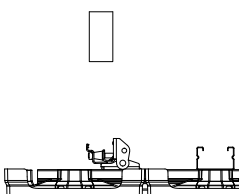
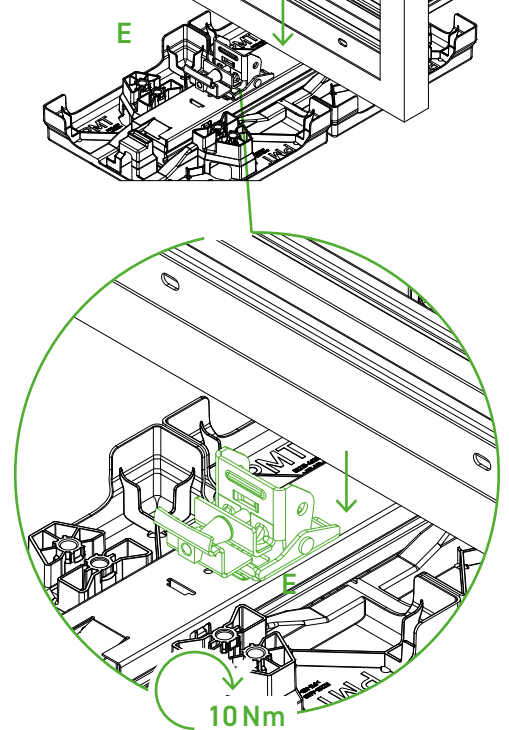
See the current project report for the number and location of ballasting.

# 6

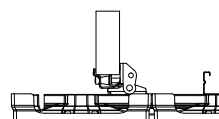
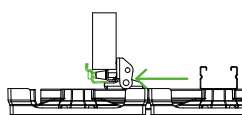
Insert the modules vertically into the Pivot Single **E** and screw them in on the reverse side.



Place the Pivot Single **E** in a vertical position and insert the module into the clamps from above. Then screw on from the rear side, checking that it is firmly in place and in the correct position.



Screw them in on the reverse side.



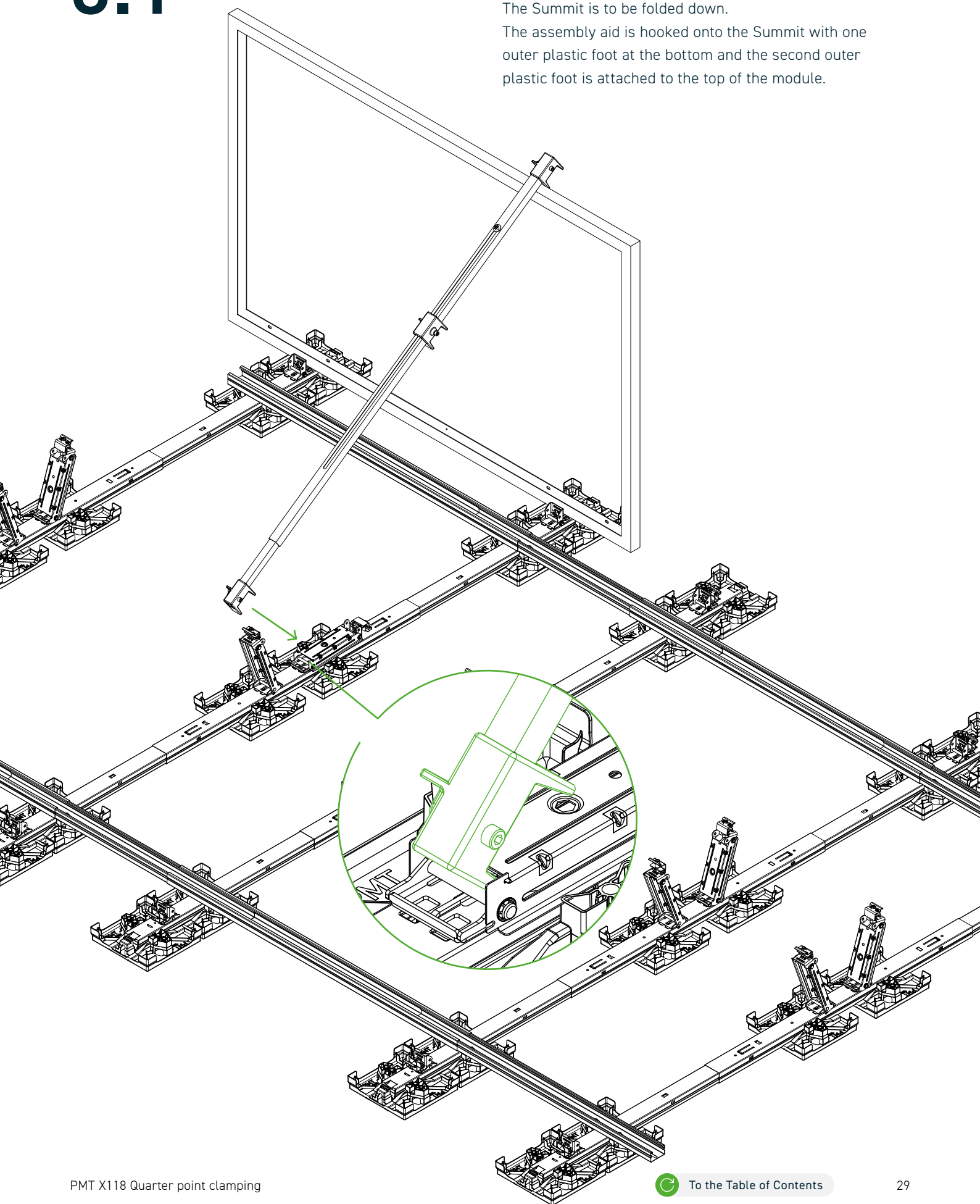


# 6.1

The assembly aid can also be used as an elevation aid.

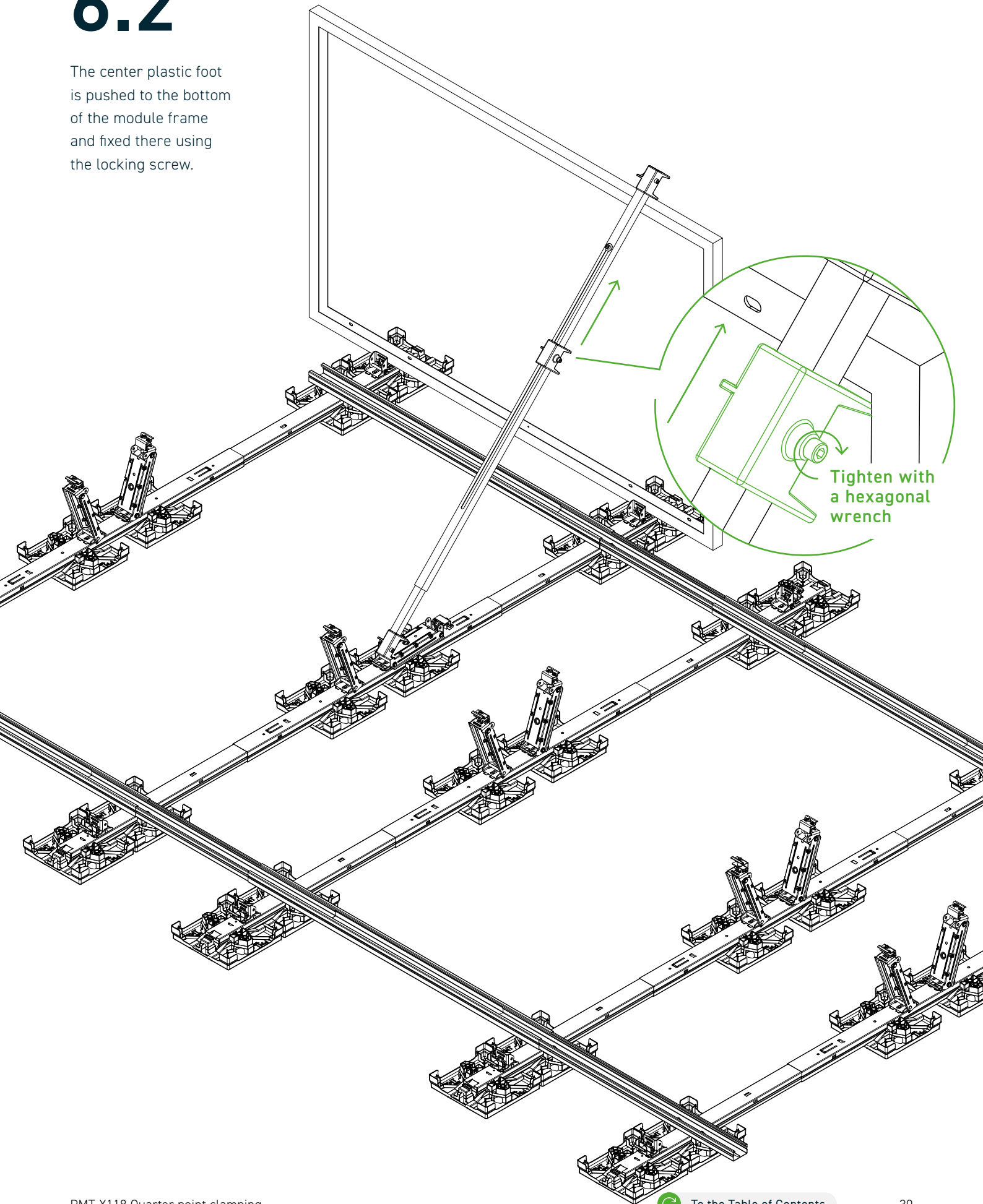
The Summit is to be folded down.

The assembly aid is hooked onto the Summit with one outer plastic foot at the bottom and the second outer plastic foot is attached to the top of the module.



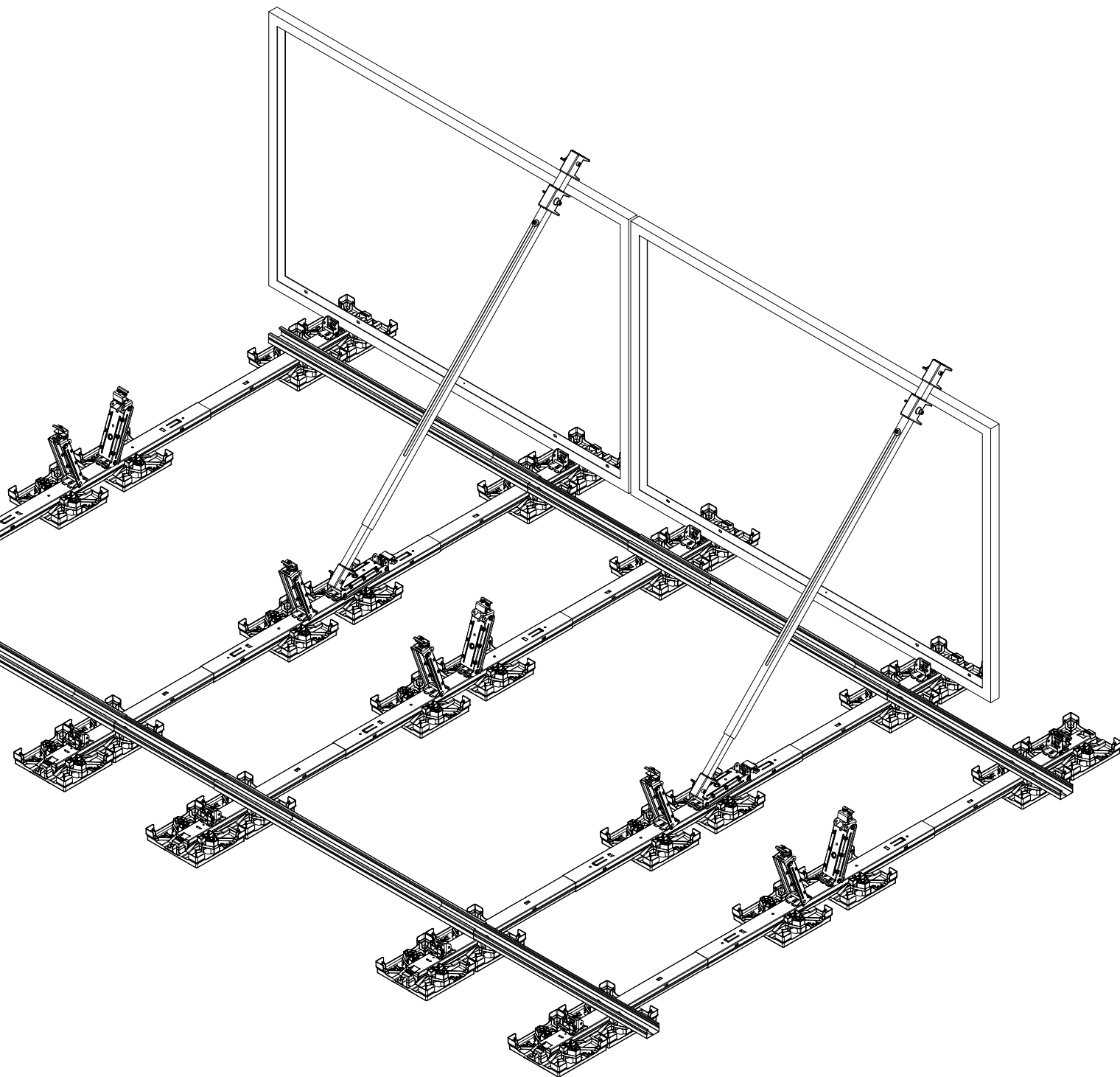
## 6.2

The center plastic foot is pushed to the bottom of the module frame and fixed there using the locking screw.



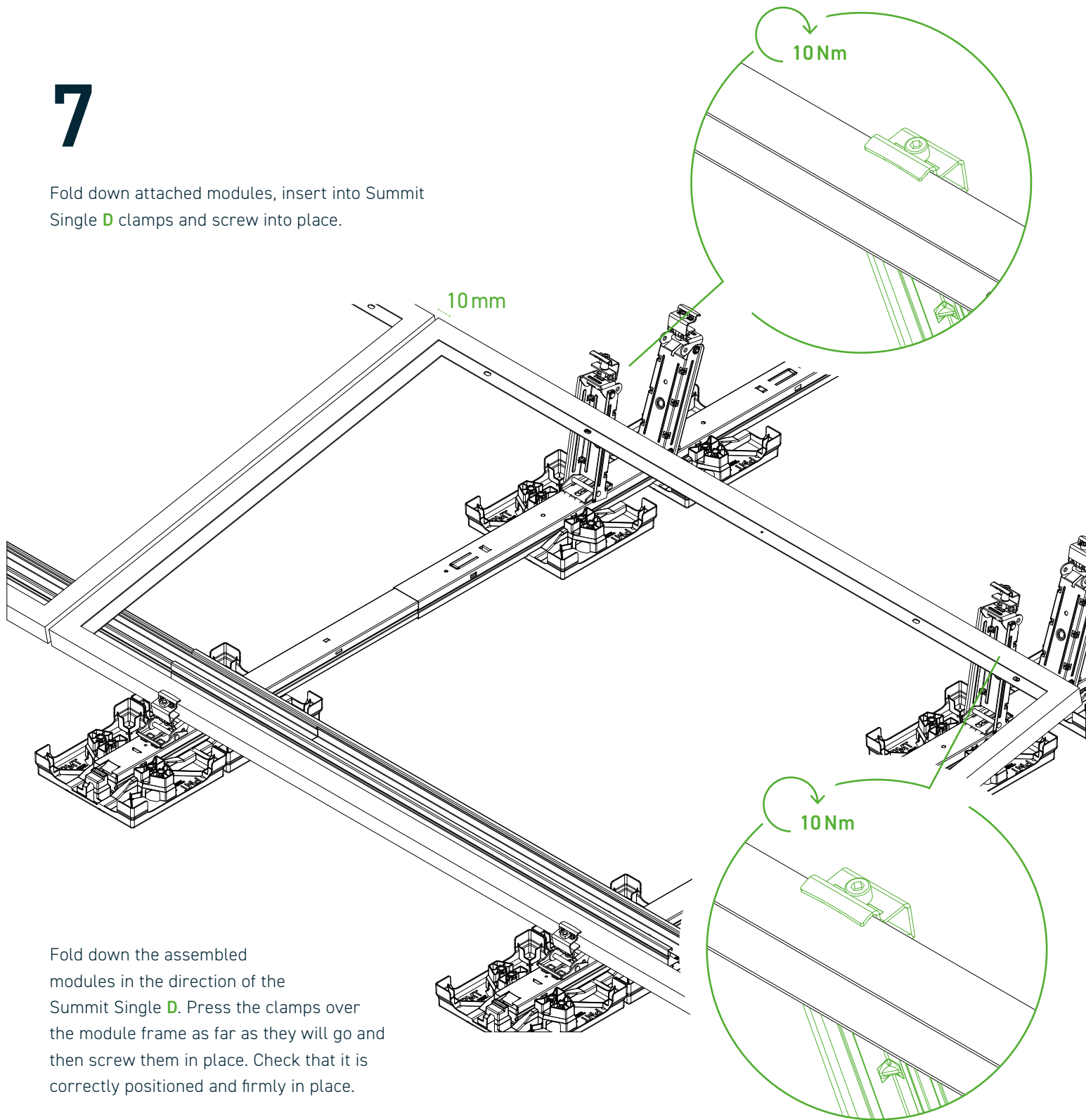
# 6.3

Repeat steps 1 and 2.

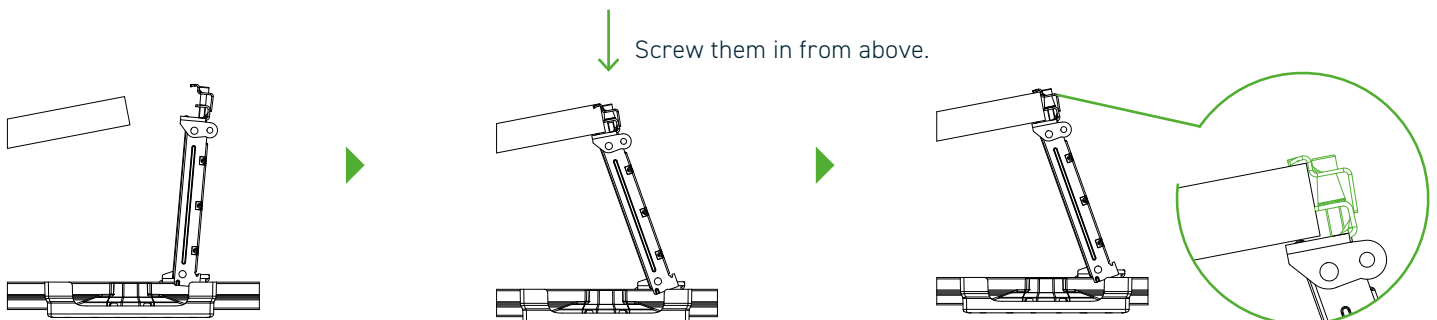


# 7

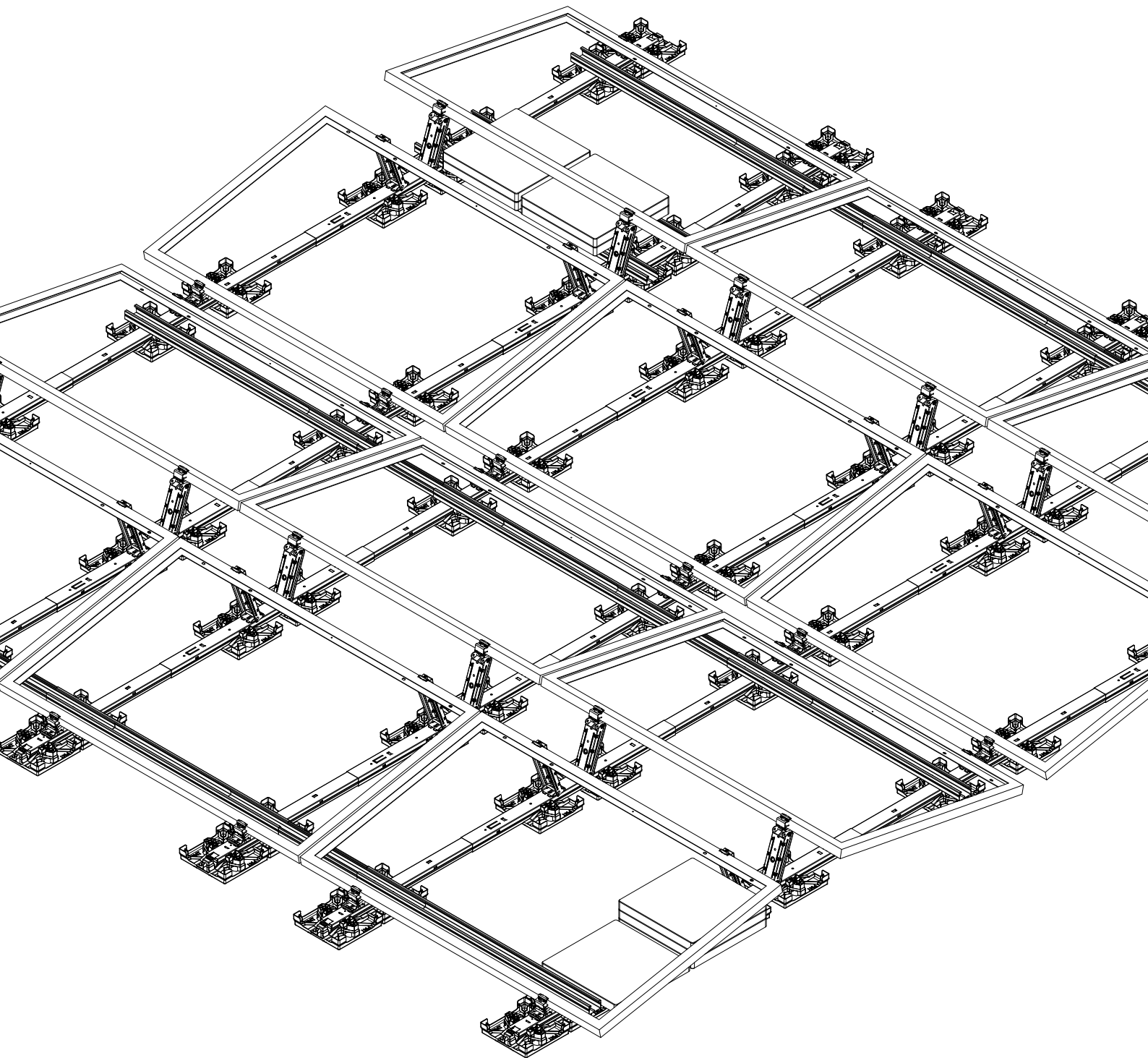
Fold down attached modules, insert into Summit Single **D** clamps and screw into place.



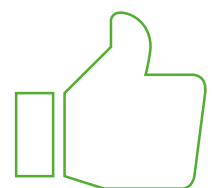
Fold down the assembled modules in the direction of the Summit Single **D**. Press the clamps over the module frame as far as they will go and then screw them in place. Check that it is correctly positioned and firmly in place.







**DONE WITH THE  
BASIC SYSTEM!**





**Attention!** Some components are available in different lengths and versions.  
The exact article versions can be found in the project documents.

## Optional component types

### 1 EasyPlate Gravel

PE-HD



### 5 Swift Shield Bracket

1.0531 - S550 GD ZM310

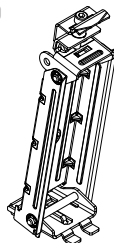


### 2 Summit Single+

1.0529 - S350 GD ZM310

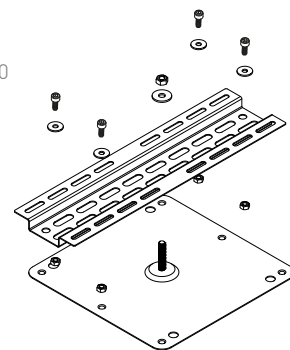
1.0531 - S550 GD ZM310

1.4301 - S235



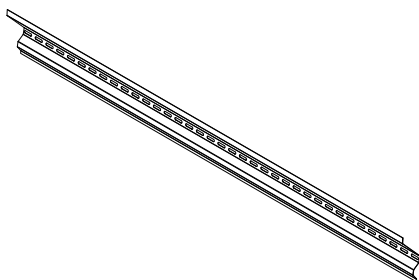
### 6 Stud Link

1.0529 - S350 GD ZM310



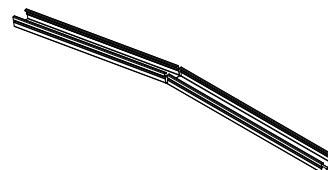
### 3 Swift Shield Link

1.0529 - S350 GD ZM310



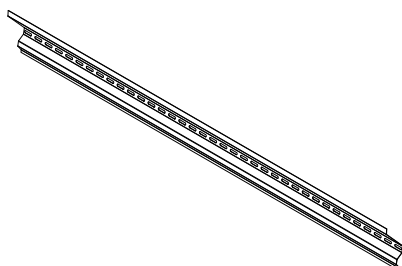
### 7 Row Ridge Quarter Point

1.0529 - S350 GD ZM310



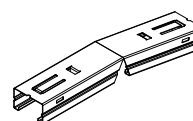
### 4 Swift Shield

1.0529 - S350 GD ZM310



### 8 Swift Ridge

1.0529 - S350 GD ZM310



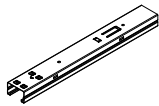


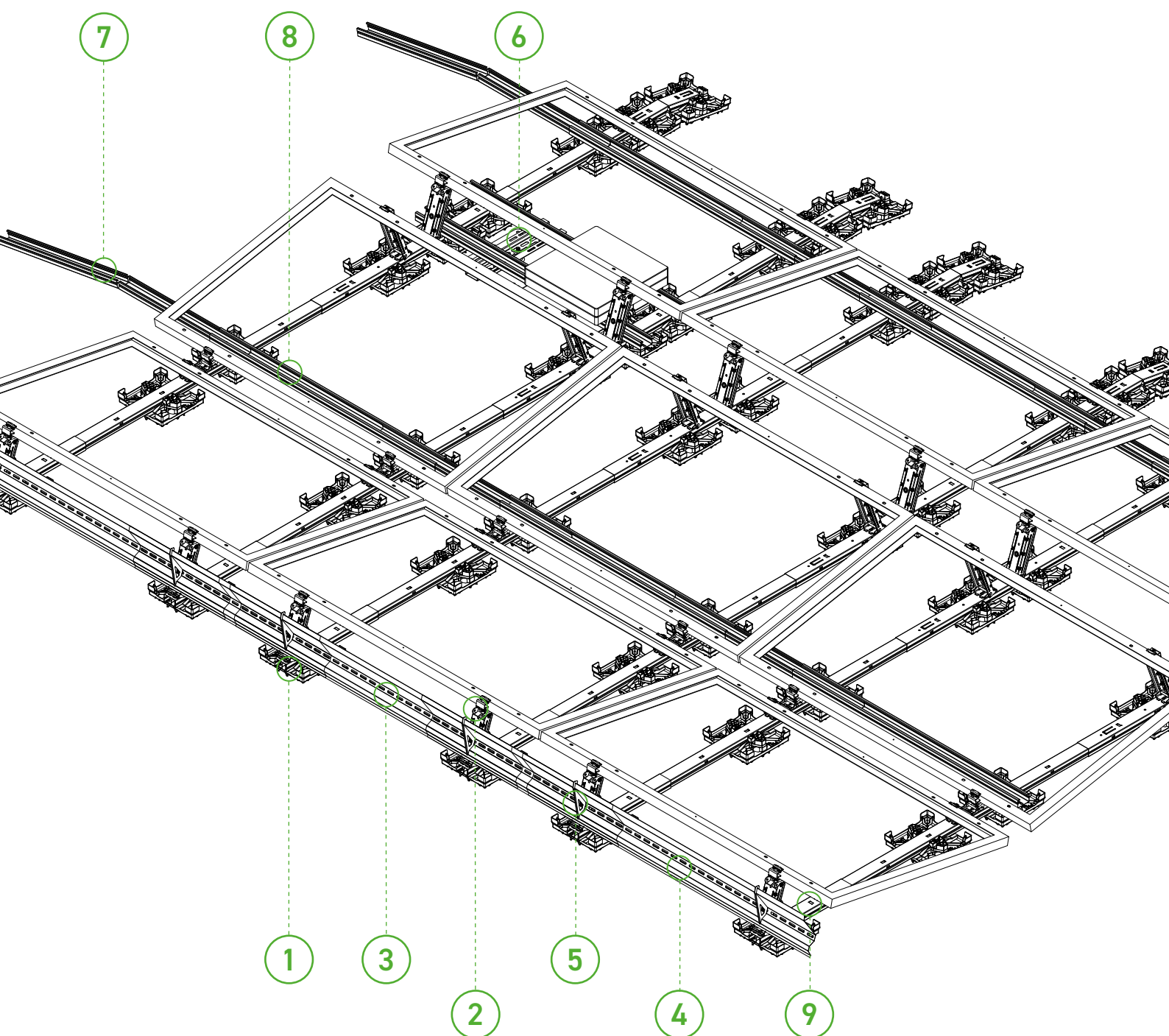
**Attention!** Some components are available in different lengths and versions.  
The exact article versions can be found in the project documents.

## Optional component types

### 9 Swift Edge

1.0529 - S350 GD ZM310





**1** EasyPlate Gravel

**2** Summit Single+

**3** Swift Shield Link

**4** Swift Shield

**5** Swift Shield Bracket

**6** Stud Link

**7** Row Ridge Quarter Point

**8** Swift Ridge

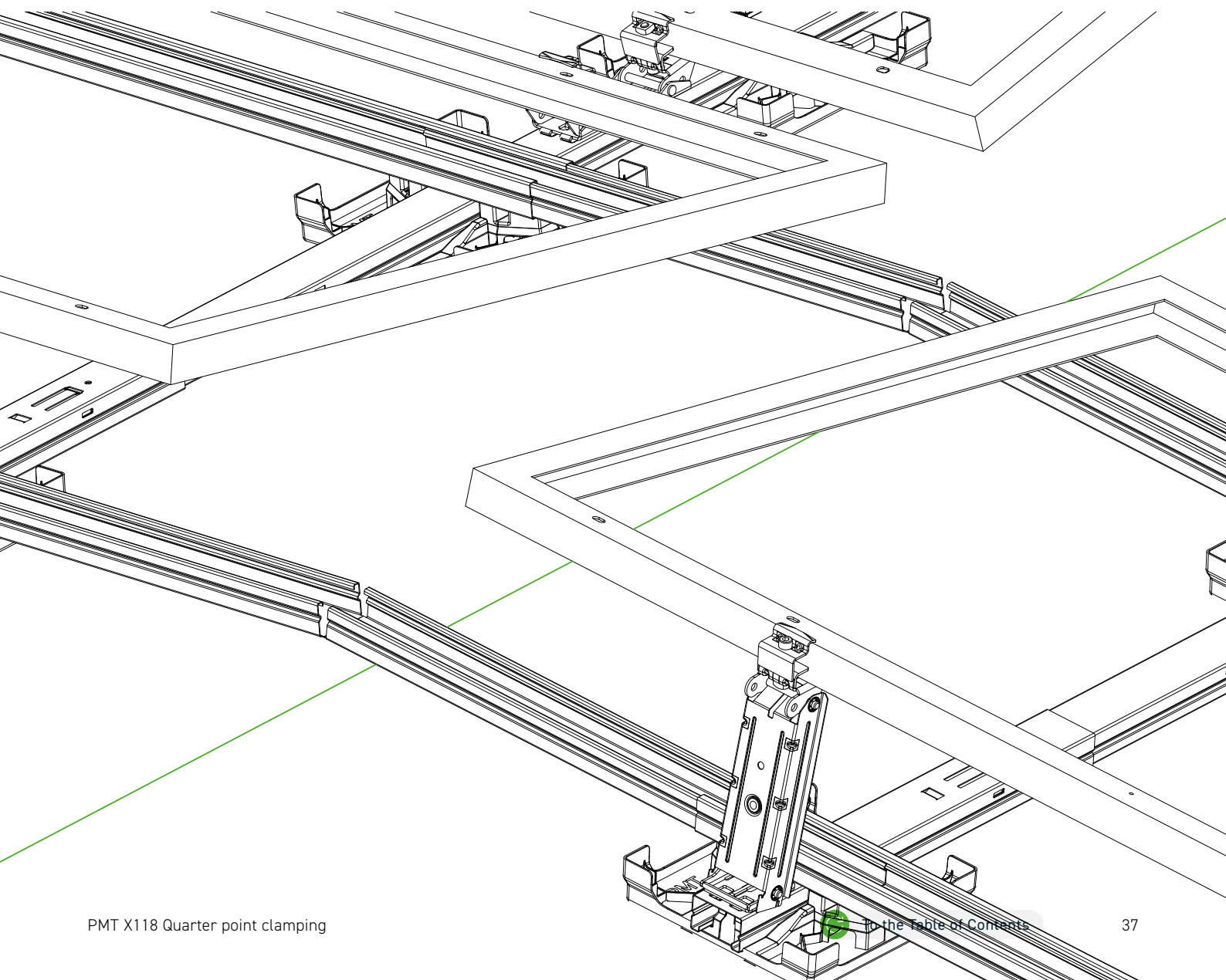
**9** Swift Edge



# Assembly of special components

Optional installation steps:

- |   |                                  |   |                         |
|---|----------------------------------|---|-------------------------|
| 1 | EasyPlate Gravel                 | 5 | Stud Link               |
| 2 | Summit Single+                   | 6 | Row Ridge Quarter Point |
| 3 | Swift Shield Link & Swift Shield | 7 | Swift Ridge             |
| 4 | Swift Shield Bracket             | 8 | Swift Edge              |

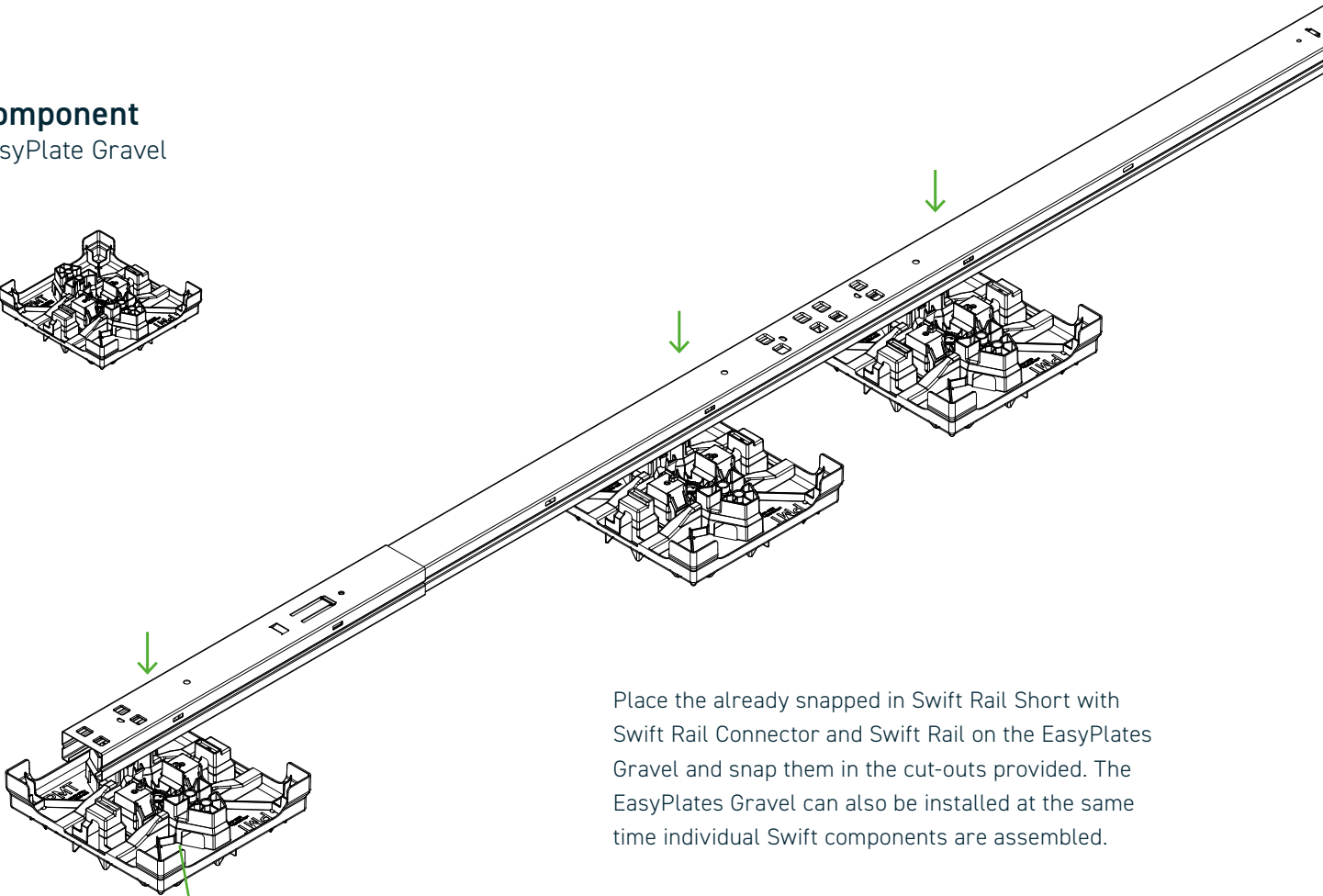
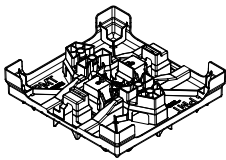


# 1

## OPTIONAL INSTALLATION STEP **EASYPLATE GRAVEL**

### Component

EasyPlate Gravel

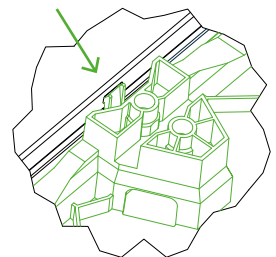
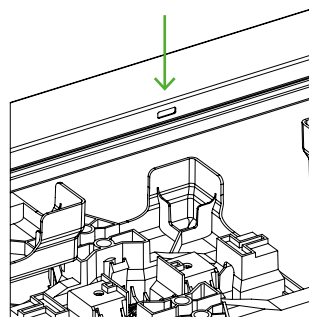
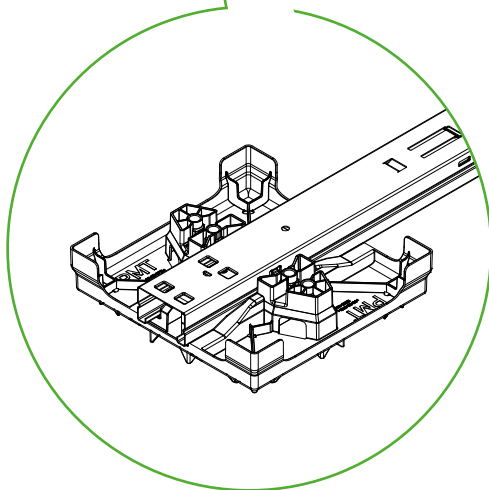


Place the already snapped in Swift Rail Short with Swift Rail Connector and Swift Rail on the EasyPlates Gravel and snap them in the cut-outs provided. The EasyPlates Gravel can also be installed at the same time individual Swift components are assembled.



### Attention!

Consult the current project report for the exact installation of the EasyPlates Gravel.

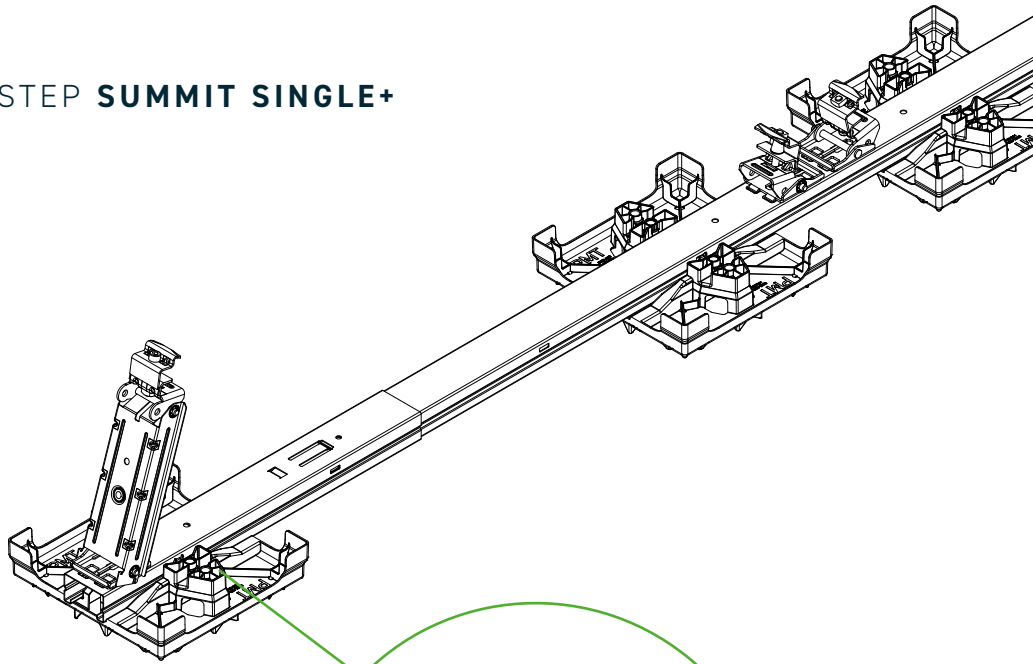
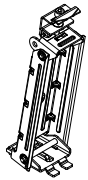


# 2

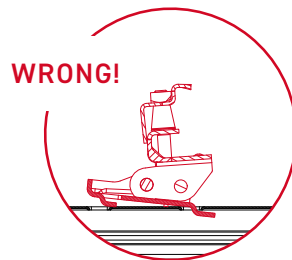
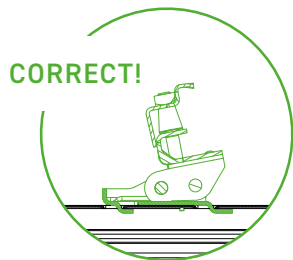
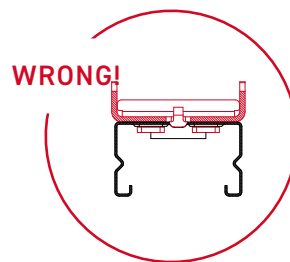
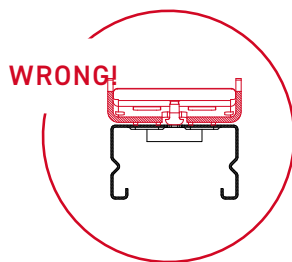
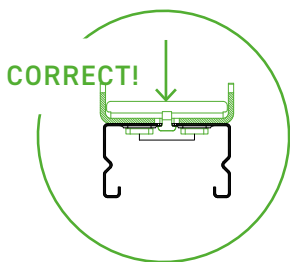
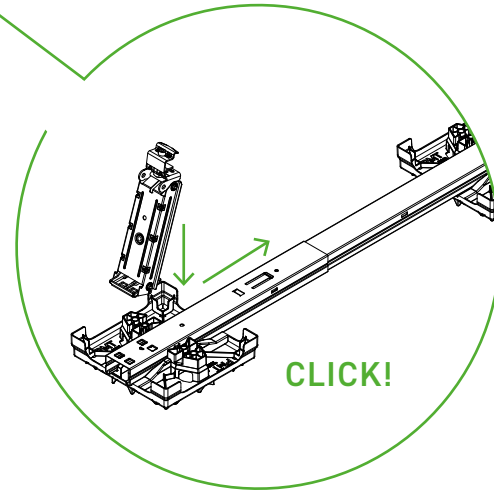
## OPTIONAL INSTALLATION STEP **SUMMIT SINGLE+**

### Component

Summit Single+



Press the Summit Single+ with the locking lugs vertically into the recesses of the Swift Rail Short and push it towards the middle of the rail until you hear a click.



### Attention!

Check the snap-lock joint to ensure it fits perfectly. When assembling, ensure that all 4 locking tabs are inserted into the recess provided and that the hammer head engages in the corresponding T-recess. Apply light pressure to the hammer head to ensure that it assumes its final position.

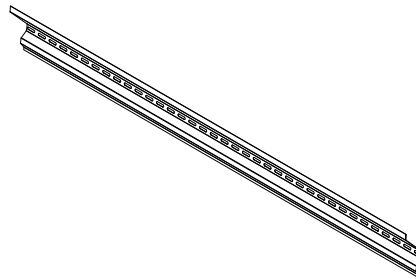
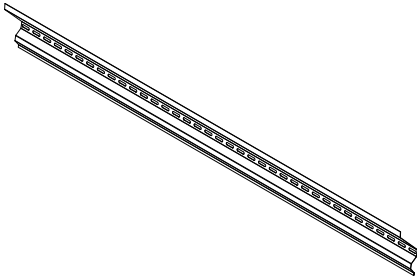
# 3

## OPTIONAL INSTALLATION STEP **SWIFT SHIELD LINK & SWIFT SHIELD**

### Component

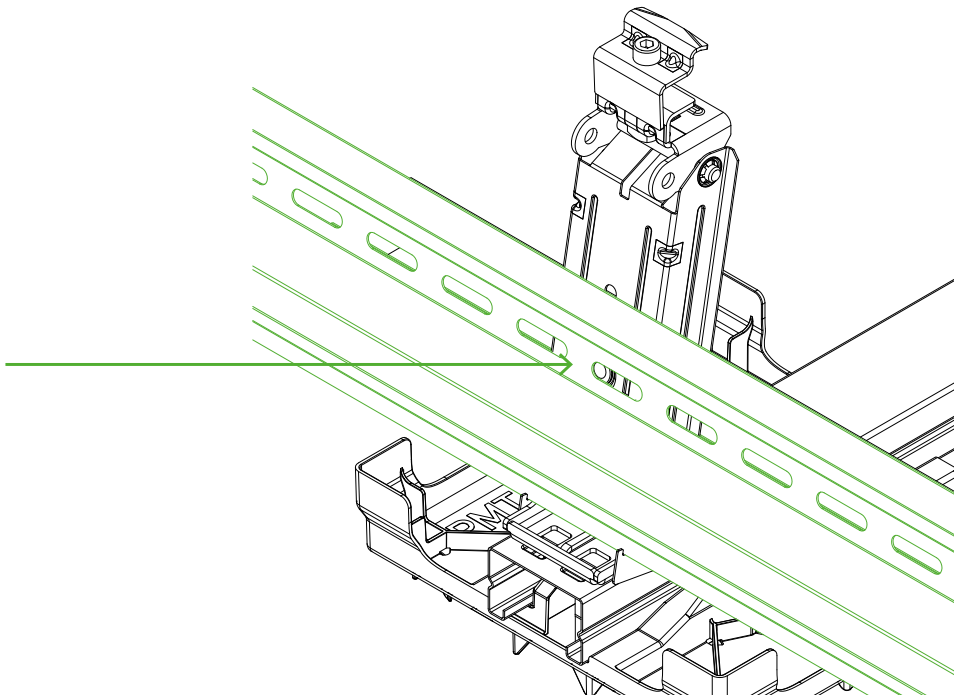
Swift Shield Link

Swift Shield

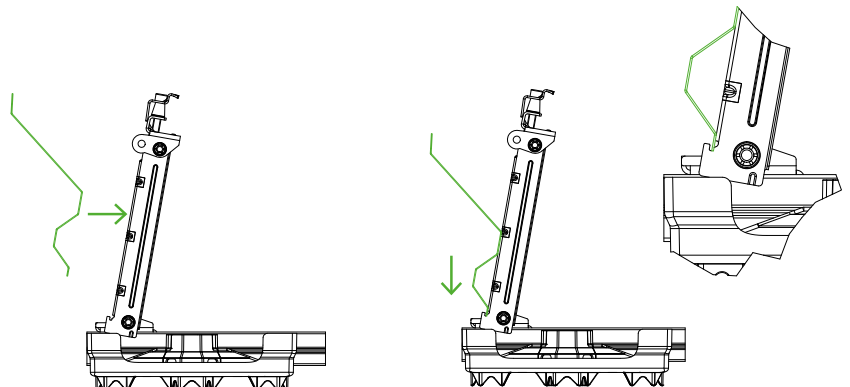


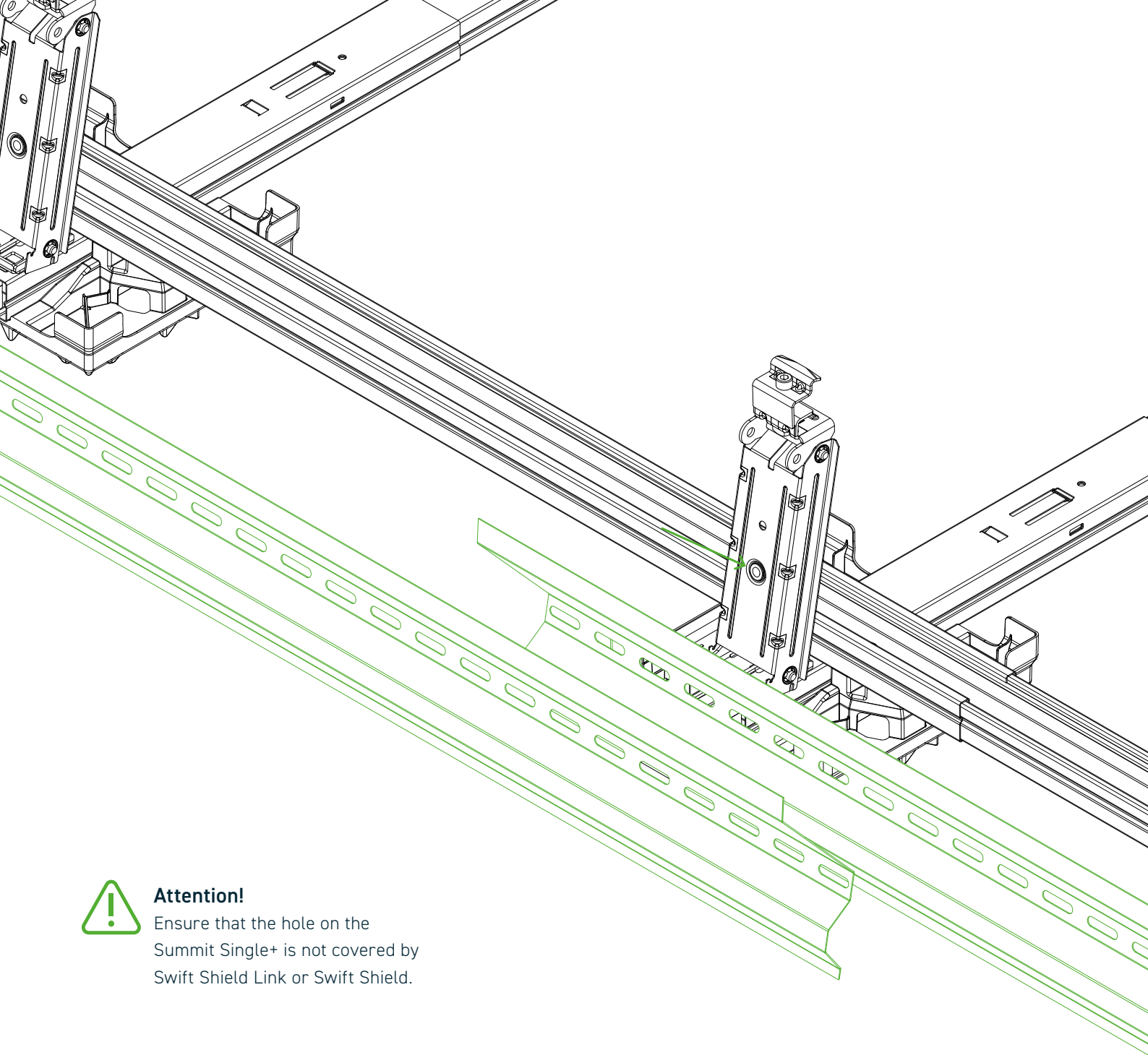
#### Attention!

Ensure that the hole on the Summit Single+ is not covered by Swift Shield Link or Swift Shield.



Place Swift Shield or Swift Shield Link on the back of the Summit Single+ and slide it down into the cut-out provided.





**Attention!**

Ensure that the hole on the Summit Single+ is not covered by Swift Shield Link or Swift Shield.

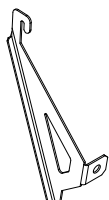
The Swift Shield Link is mounted in the same way as the Swift Shield. Ensure that both components have sufficient overlap.

# 4

## OPTIONAL INSTALLATION STEP **SWIFT SHIELD BRACKET**

### Component

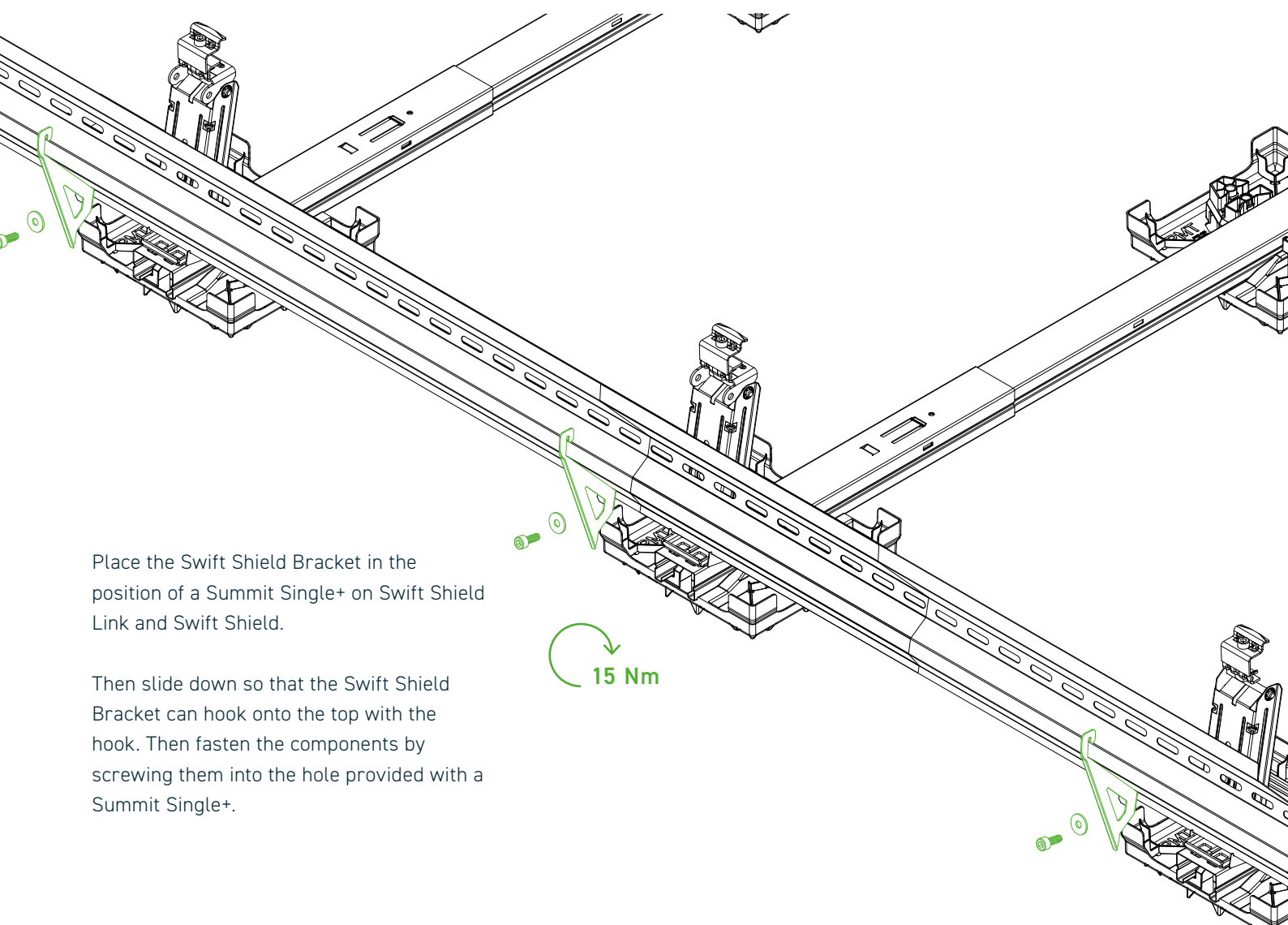
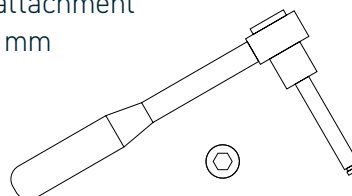
Swift Shield Bracket



### Required tools

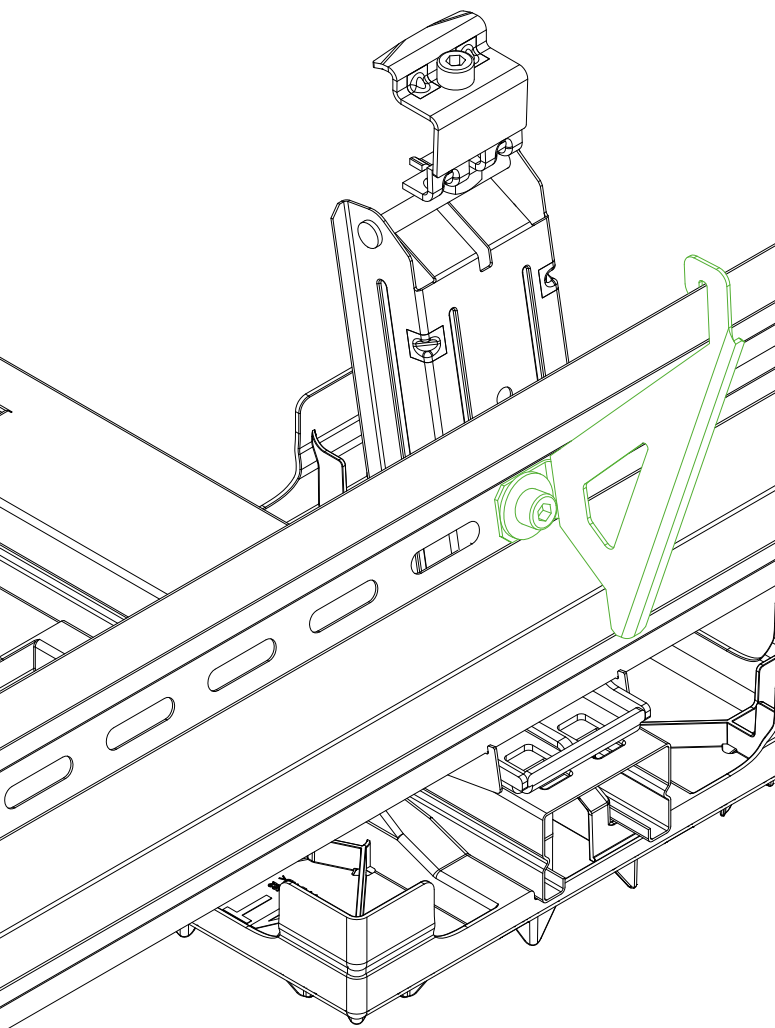
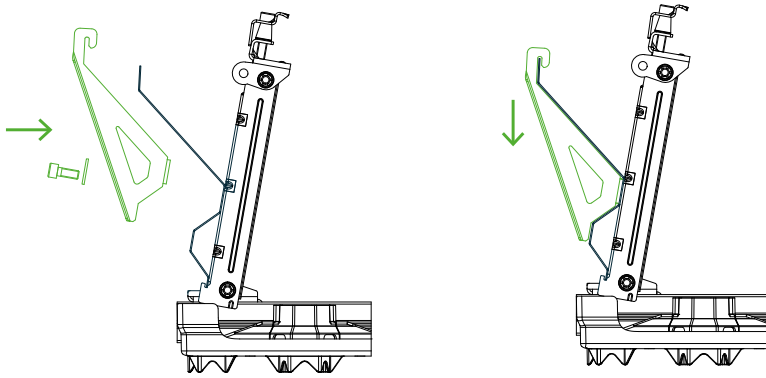
Torque-wrench with attachment

Hexagon socket SW 6 mm



Place the Swift Shield Bracket in the position of a Summit Single+ on Swift Shield Link and Swift Shield.

Then slide down so that the Swift Shield Bracket can hook onto the top with the hook. Then fasten the components by screwing them into the hole provided with a Summit Single+.



### Attention!

Ensure that when attaching Swift Shield or Swift Shield Link, the hole on the Summit Single+ is not covered so that a Swift Shield Bracket can be attached there.

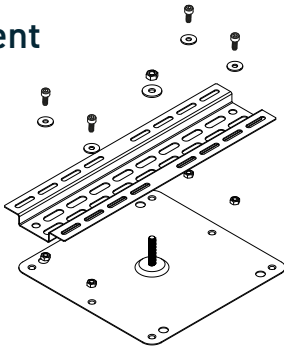


# 5

## OPTIONAL INSTALLATION STEP **STUD LINK**

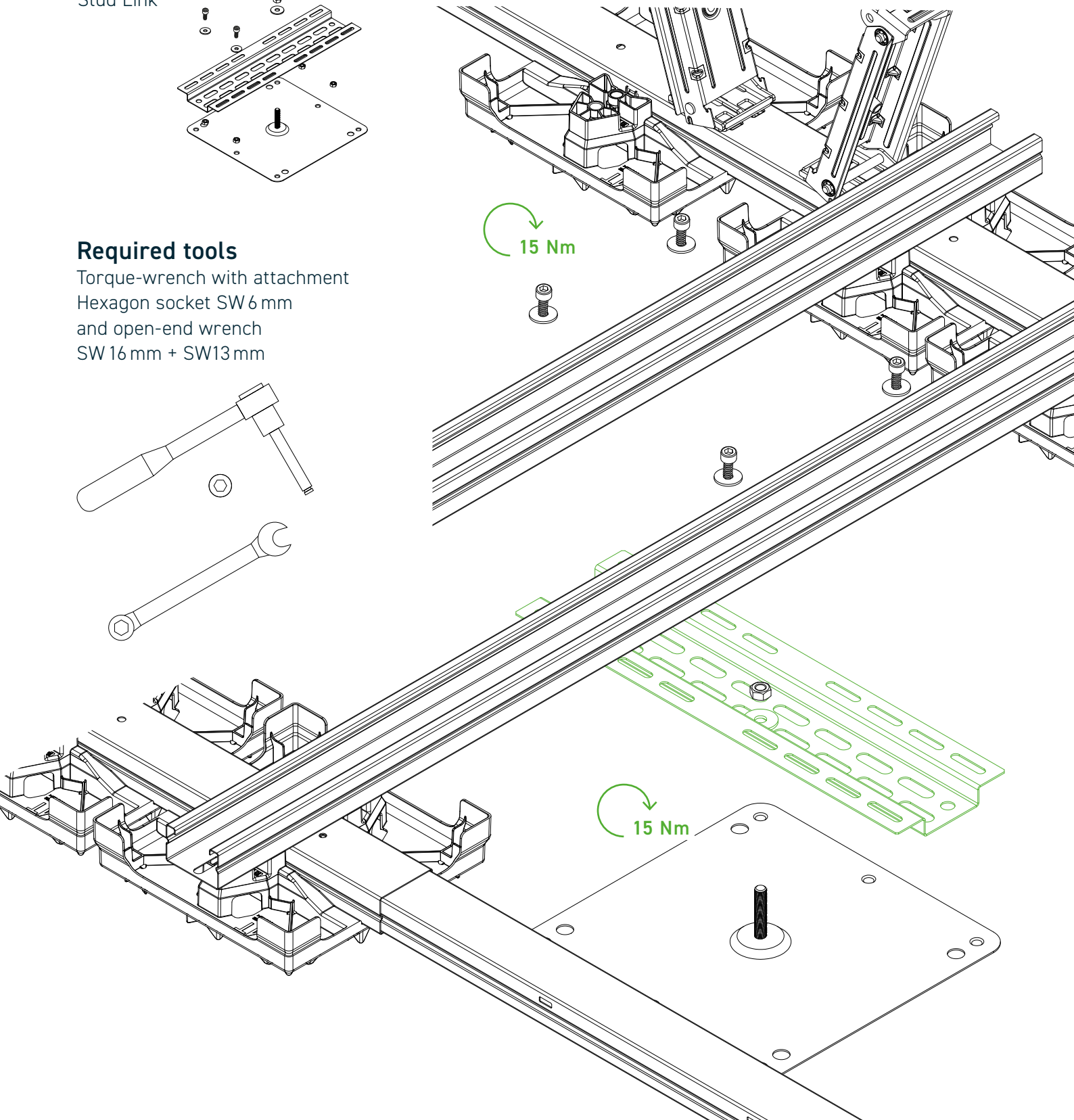
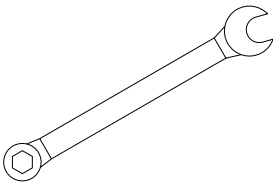
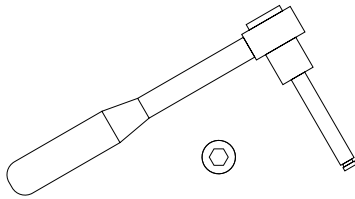
### Component

Stud Link



### Required tools

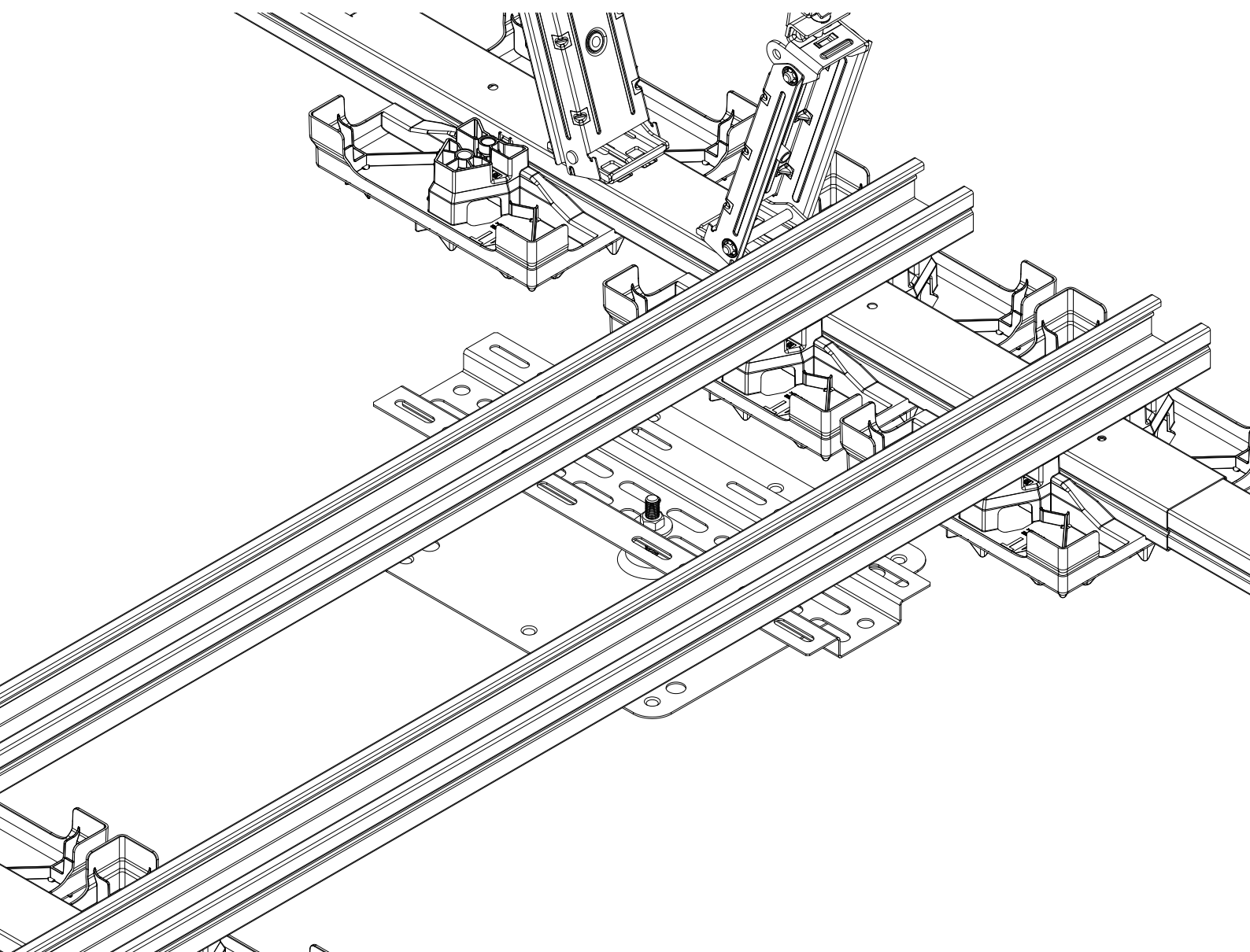
Torque-wrench with attachment  
Hexagon socket SW 6 mm  
and open-end wrench  
SW 16 mm + SW13 mm





The Stud Link attachment points are located on the Row Connector or Row Link and should be fitted before the Stud Link is assembled. The Stud Link connection should be fixed as close as possible to a rail.

The Stud Link is aligned centrally and pushed over the threaded bolt.

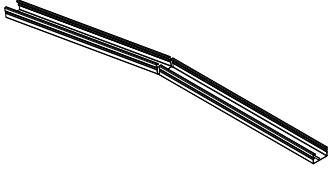


# 6

## OPTIONAL INSTALLATION STEP **ROW RIDGE QUARTER POINT**

### Component

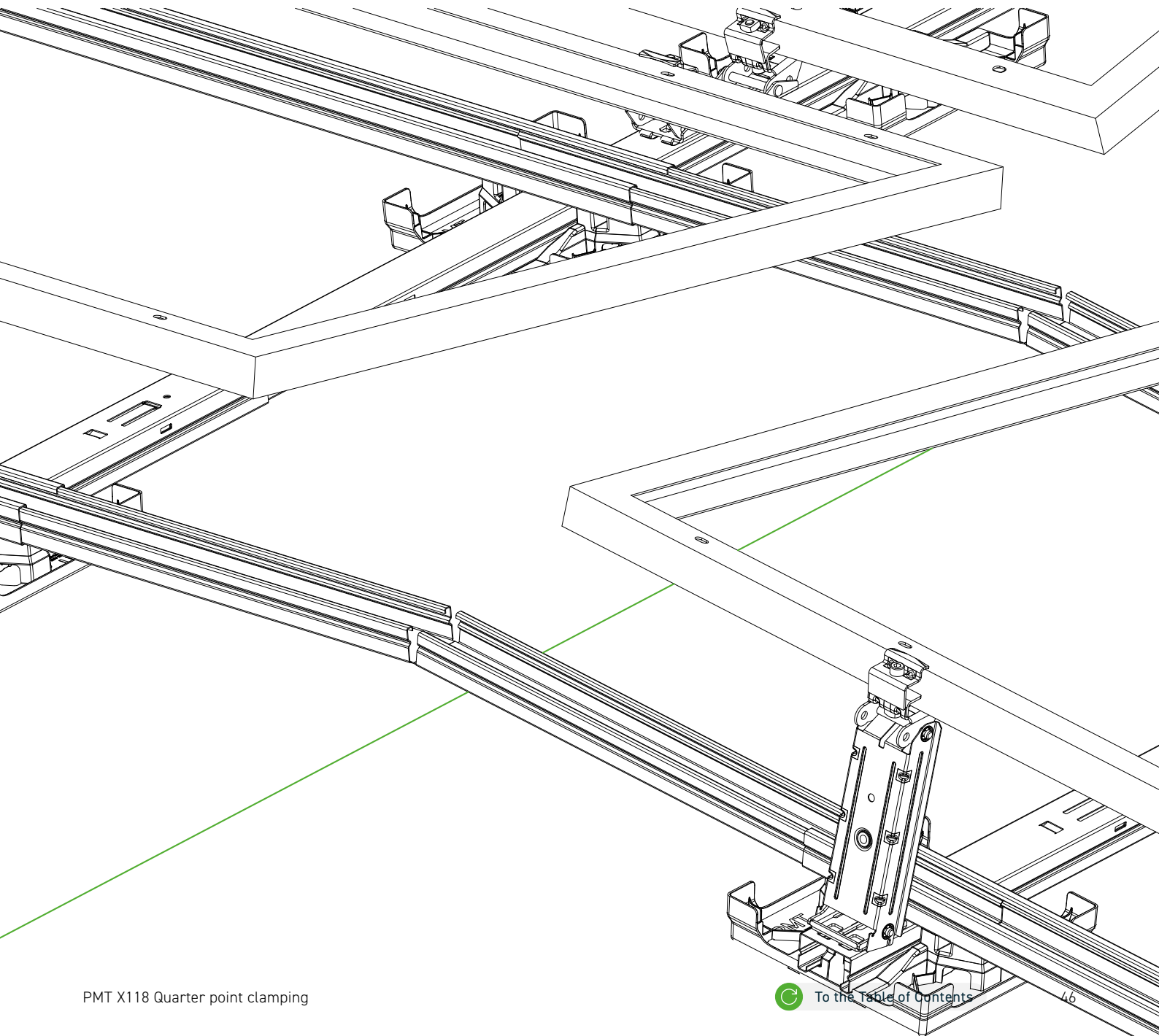
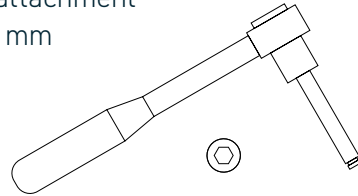
Row Ridge Quarter Point



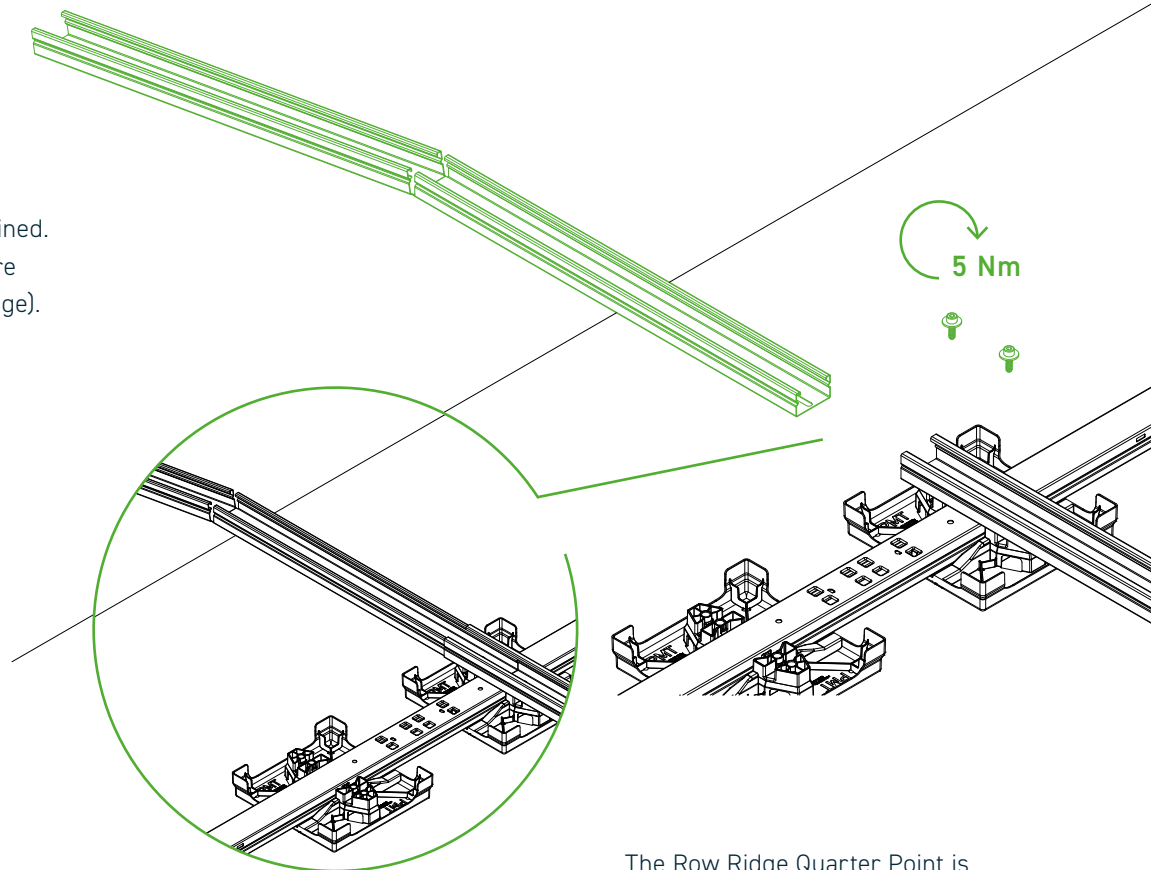
### Required tools

Torque-wrench with attachment

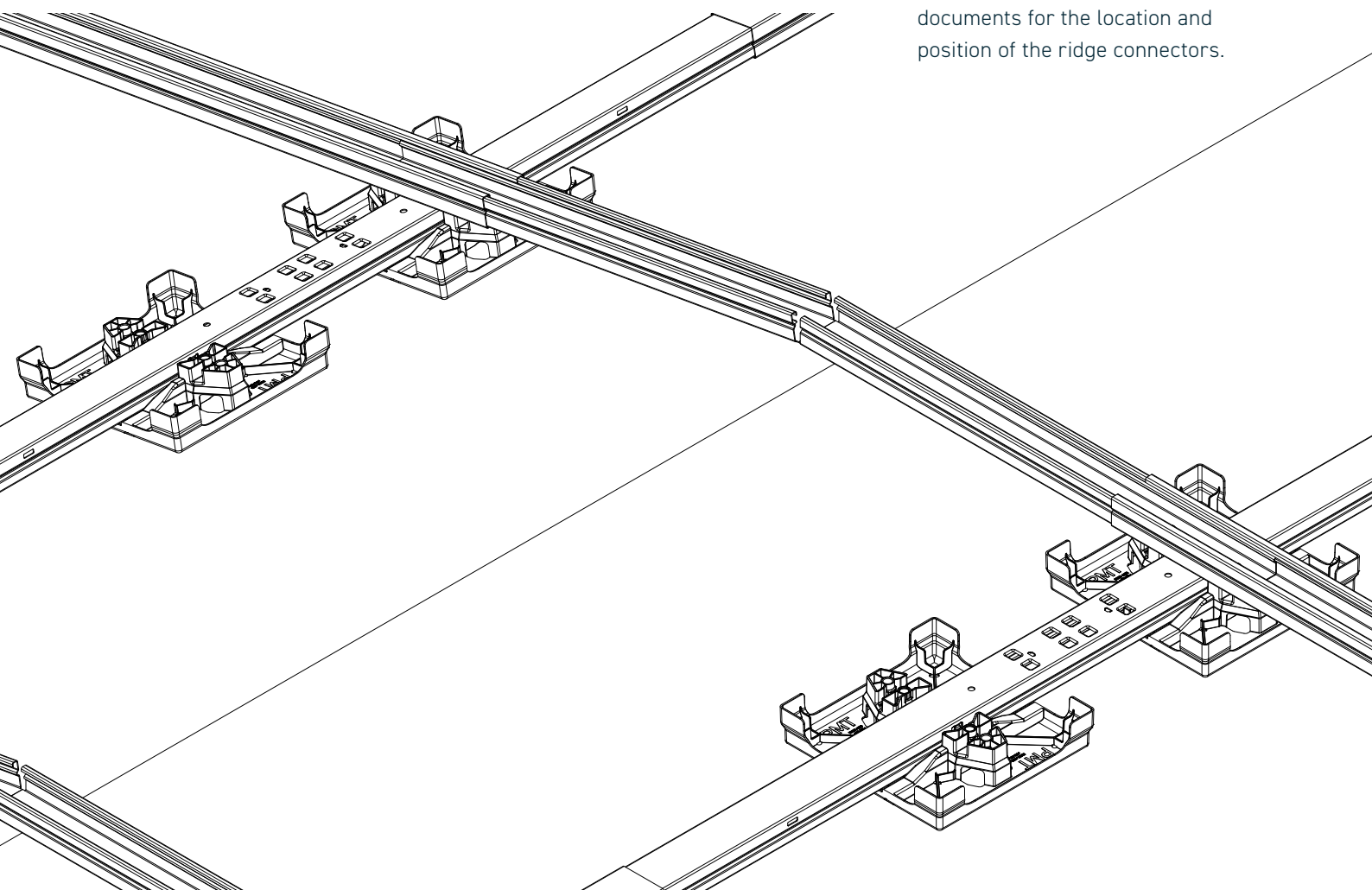
Hexagon socket SW 6 mm



First, the ridge line is determined.  
Then the Swift Rail profiles are  
assembled (parallel to the ridge).



The Row Ridge Quarter Point is  
installed instead of a Row Link. The  
structure should be assembled  
evenly on both sides to prevent  
lopsided loading and thus slipping.  
Always refer to the current project  
documents for the location and  
position of the ridge connectors.

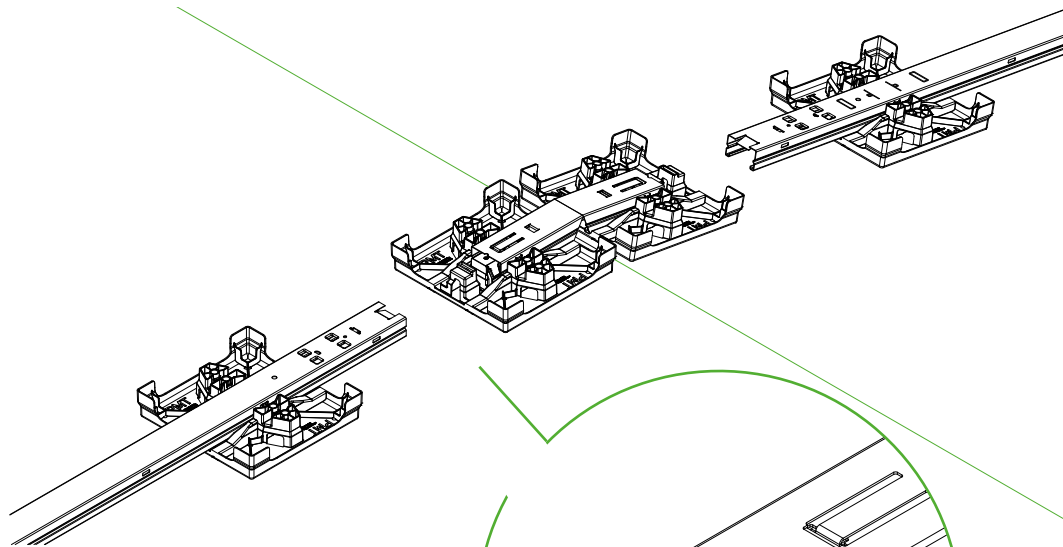
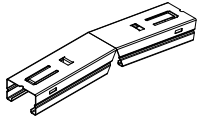


# 6

## OPTIONAL INSTALLATION STEP **SWIFT RIDGE**

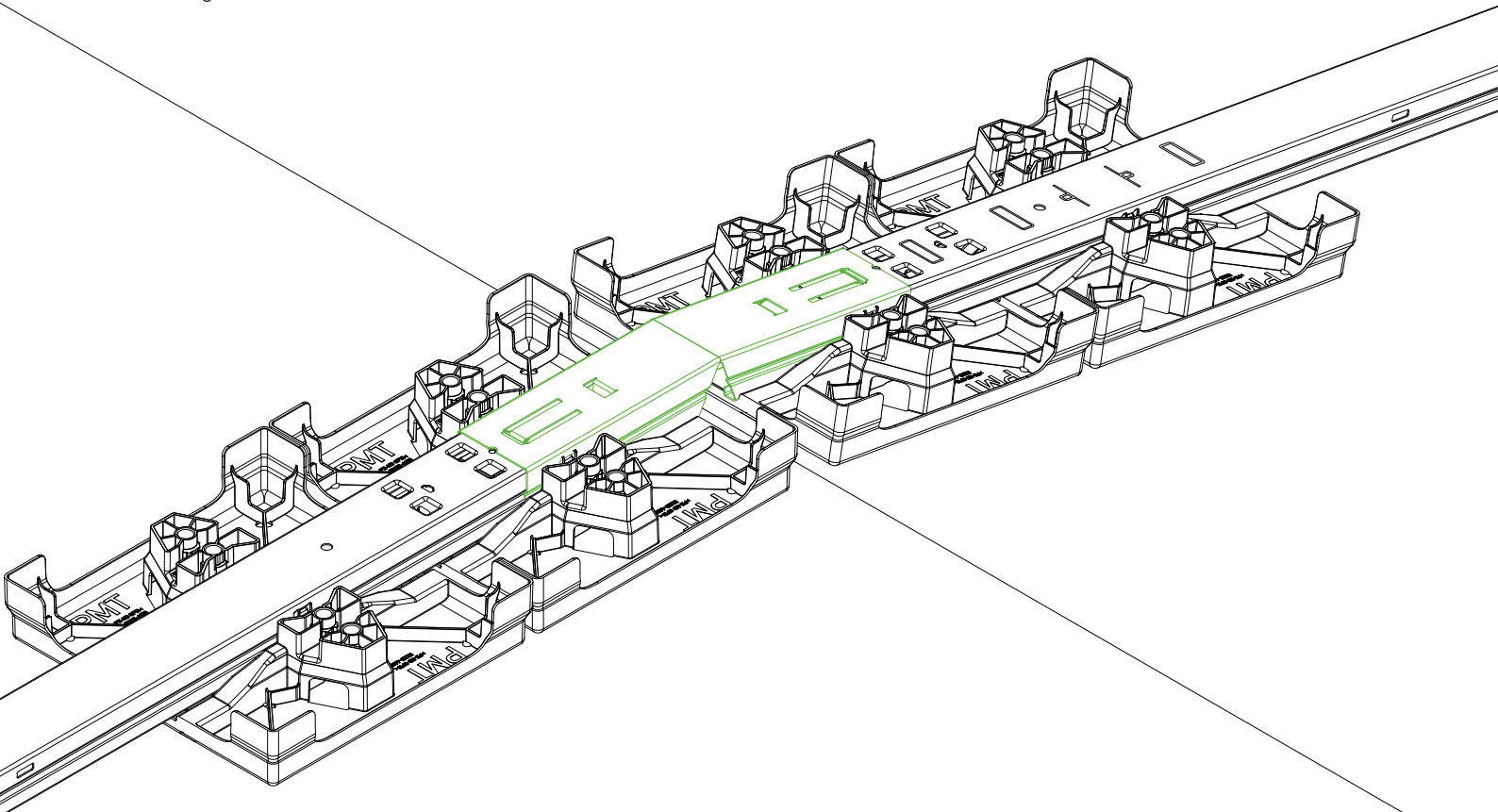
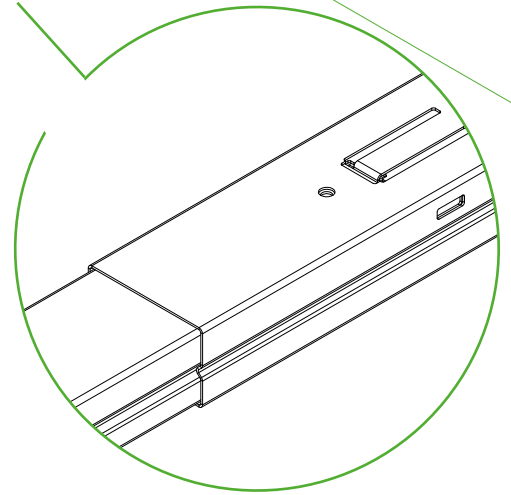
### Component

Swift Ridge



First, the ridge line is determined.

Then the Swift Rail profiles are assembled and the Swift Ridge is installed at the end of the Swift Rail Short. The structure should be assembled evenly on both sides to prevent lopsided loading and thus slipping. Always refer to the current project documents for the location and position of the ridge connectors.

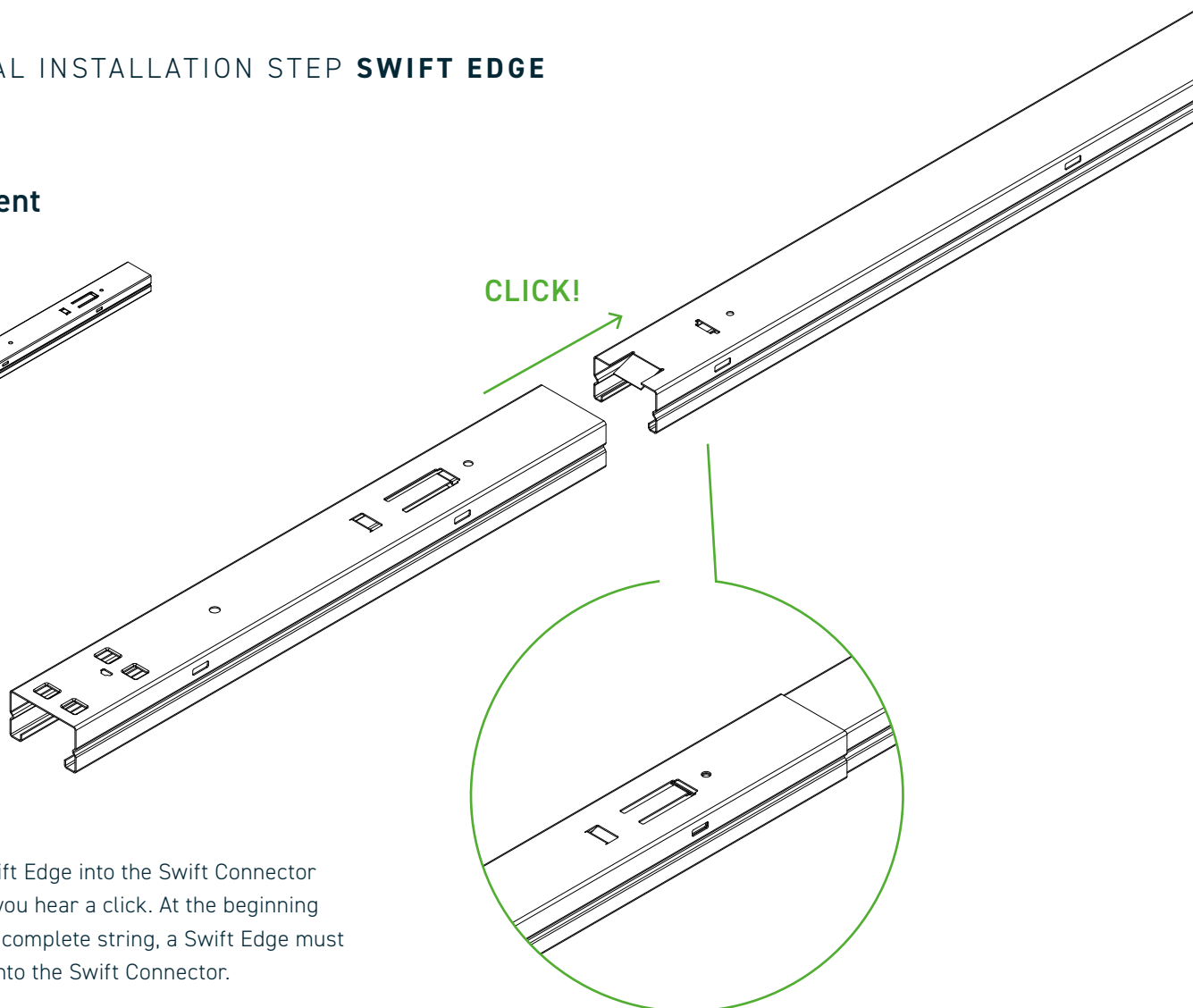
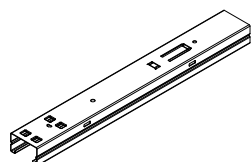


# 7

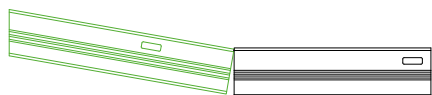
## OPTIONAL INSTALLATION STEP **SWIFT EDGE**

### Component

Swift Edge



Slide the Swift Edge into the Swift Connector profile until you hear a click. At the beginning and end of a complete string, a Swift Edge must be pushed onto the Swift Connector.



### PMT tip

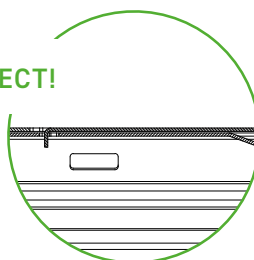
Place the Swift Edge at a slight angle to the profile of the Swift Connector and push it in with a tilting movement.



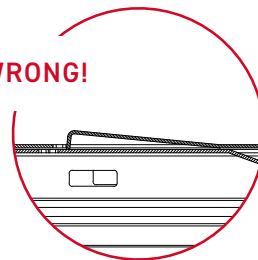
### Attention!

Check the snap-lock joint for strength and to ensure it fits perfectly.

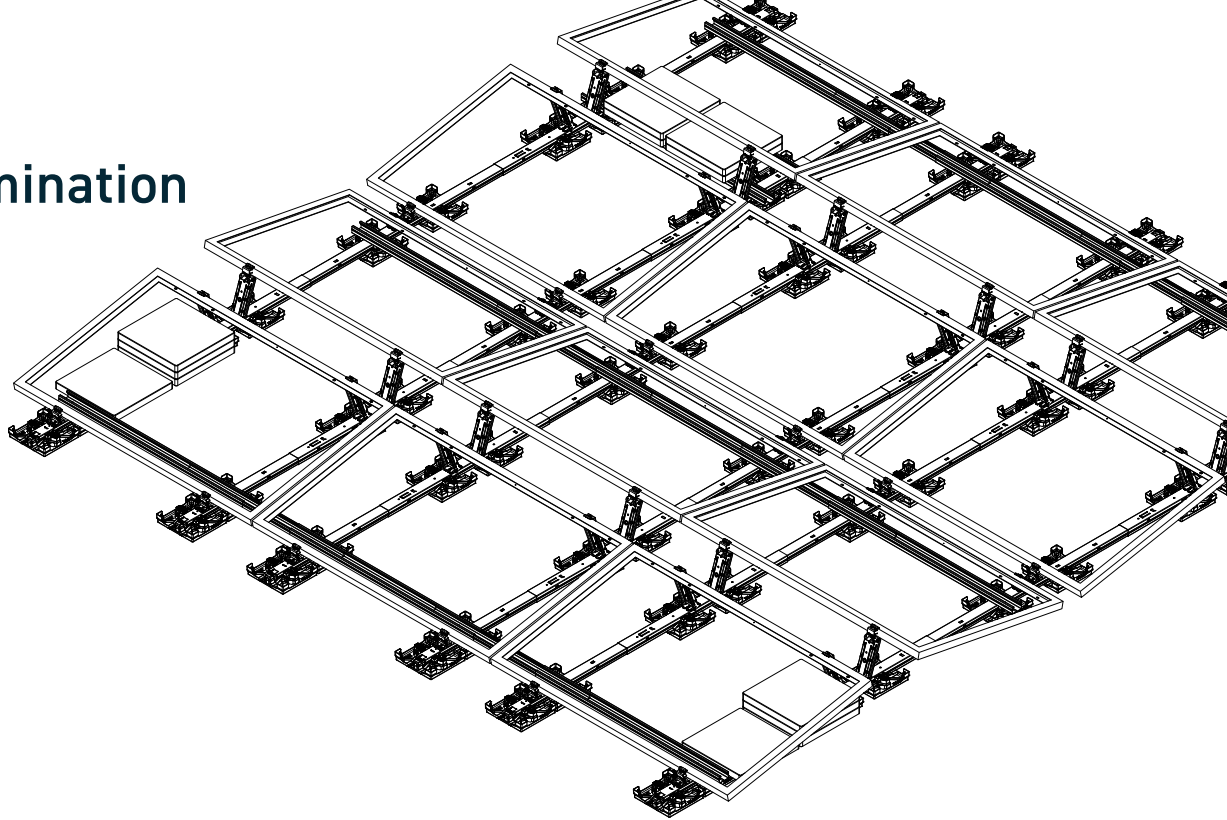
**CORRECT!**



**WRONG!**



# Final Examination



## Final Examination

- Check whether the entire system and all components have been installed according to the current project report.
- It must be checked whether all screws are inserted at the intended points and tightened with the specified tightening torque.
- Information on the tightening torque can be found in the assembly instructions or on the packaging. Attention! These are safety-relevant and can lead to considerable damage if not observed.
- Check whether all ballast assembly has been performed with the specified weights. The information can be found in the current project report. Make sure that slipping, tilting or wobbling of the ballast elements is permanently eliminated. Attention! These are safety-relevant and can lead to considerable damage if not observed.
- Check that all click-connections are locked correctly.

## Maintenance

- The upper and lower limits of the tightening torque of the screw connections must be checked regularly as part of the maintenance (maintenance interval at least once a year; observe the maintenance protocol).
- The recommendations for maintenance routines of the PMT X118 system due to thermal expansion must be observed.

# Warranty and Product Liability

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Please note that a product warranty is only granted in accordance with our warranty conditions if all safety and system instructions have been complied with and the system has been installed properly.

The warranty conditions can be found at [pmt.solutions/downloads/](https://pmt.solutions/downloads/).

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# Service Hotline

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