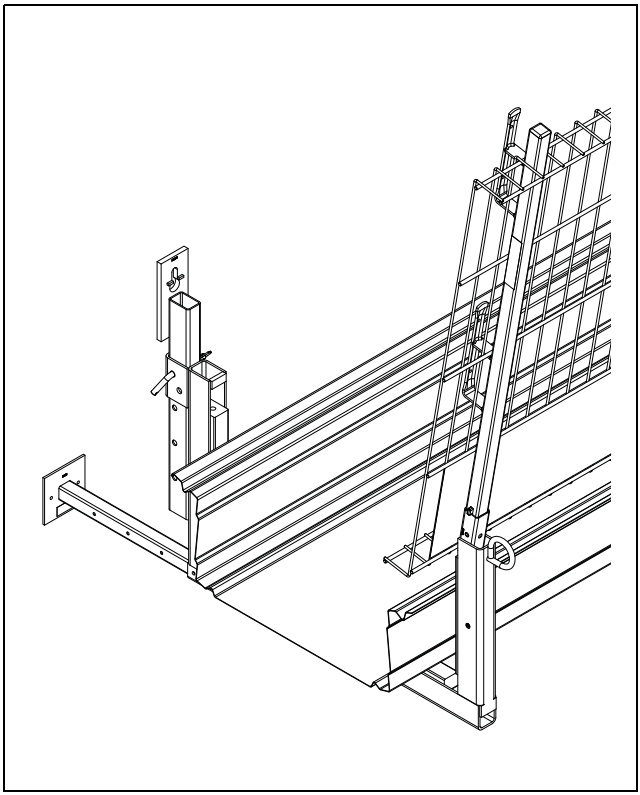
COMBISAFE®

Hanging Platform

Including Hanging Platform Clamp, Keyhole Attachment, Relocator, Hanging Platform Beam, Corner Platform and accessories



USER INSTRUCTIONS

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General

The Combisafe Hanging Platform is used, for example, for roof work, finishing work or lighter work where a platform or scaffolding is required.

A Hanging Platform is often cheaper to install than traditional scaffolding. In addition, it does not take up any ground space, and there is no risks of burglary via the scaffolding.

The system is based on Consoles where Steel Boardwalks or scaffold planks are laid to create a working area. The Consoles can be fitted in different ways using the various attachments.

These attachments provide a range of assembly options: the Hanging Platform can be used for many different applications and for many different types of job.

You can adjust the attachments in the Hanging Platform Console, which also provide the option of adjusting the height of the working surface of the Hanging Platform.

The hanging platform is type approved according to AFS 1990:12, scaffolding, and applicable parts of SS EN12810-1. Type approval was carried out by SP Technical Research Institute of Sweden, type approval certificate No. 270303.

Figure 1. Type test certificate No 270303

Safety instructions

Always check products and equipment before use

Check all component parts to the Hanging Platform system before assembly.

Never use damaged or rusty materials as this can affect safety.

Do not combine products

It is not recommended to install, combine or interconnect Hanging Platforms using products other than those supplied by Combisafe. Combisafe product liability only applies to combinations with correctly fitted Combisafe products.

Always use personal fall arrest equipment

Personal fall arrest equipment must always be worn during assembly and dismantling when a risk of falling exists. This also applies to work carried out from a MEWP (mobile elevating working platform).

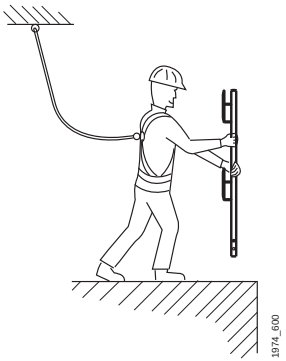

Figure 2. Personal fall arrest equipment

Inspection after a fall

If a guard rail is subject to an accident or exposed to a heavy load, the rail must be checked by a competent person. Contact Combisafe in the event of uncertainty.

Wind, ice and snow

The Hanging Platform is designed to withstand a wind load of 770 N/m² (equal to a wind speed of around 35 m/s) and a wind load of 200 N/m² under working conditions (equal to a wind speed of around 18 m/s).

Should you increase the density of the guard rail, for example, by using scaffold sheeting or plywood, the wind load at the given wind strength will increase. Never cover the guard rail without checking that the permitted wind load has not been exceeded.

The Hanging Platform is not designed for exposure to static or dynamic loads resulting from ice and snow. Always keep the Hanging Platform free from ice and snow.

Remember

- Plan the fall guard at an early stage, this will benefit everyone.
- Only use inspected safety products.
- Ensure sound and safe access to the installation site/work site and to the Hanging Platform. Remember not to jump down onto the Platform.
- Cordon off below and around the assembly area in connection with the installation so that unauthorized personnel are not injured if, for example, you should drop tools or material.
- Use tools designed for the type of work to be carried out.
- Tighten screws properly and check that split pins lock correctly.
- Keep threads clean and lubricated.
- Keep the installation area in order.
- A safe workplace is an agreeable workplace.
- Many fall accidents occur from a low height.
- Ensure that the height of the guard rail above the eaves is sufficient.
- Check the pitch of the roof if the Hanging Platform is used as fall guard for roofs (see EN13374). Applications that only regard use as fall protection are not covered by the requirements of the type approval according to AFS 1990:12.
- Check the marking with information on installed system.

Conditions

- Max distance between Consoles is 2.4 m.
- Max load on the Platform is load class 3 in SS-EN12811-1.
- Max 200 kg/m^2 UDL (Uniformly Distributed Load).
- Max 100 kg at point load.

Technical data

Following chapter describes the products included in the system and their technical data. For information regarding assembly and installation, see chapter *Assembly*.

2100 Hanging Platform Console

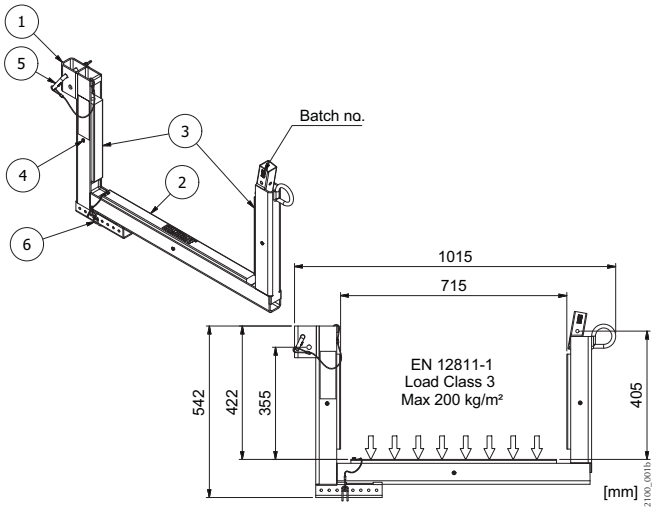

Figure 3. Hanging Platform Console

Item	Quantity	Part no.	Description	Weight:
1	1	10021	Hanging Platform Console Body	13 kg
2	1	100043	Wood insert, bottom	1.0 kg
3	2	100044	Wood insert, side	0.5 kg
4	3	100062	Wood screw ST 5.5x32	-
5	1	1900	Lock Pin	0.1 kg
6	1	100165	Shaft Locking Pin	-

Weight: 15 kg

Surface finish: Hot-dip galvanized

The Hanging Platform Console is the foundation of the Hanging Platform system, it is the load bearing part where the walking surface and the rail are anchored. It can be installed in different ways.

2130 Hanging Platform Clamp

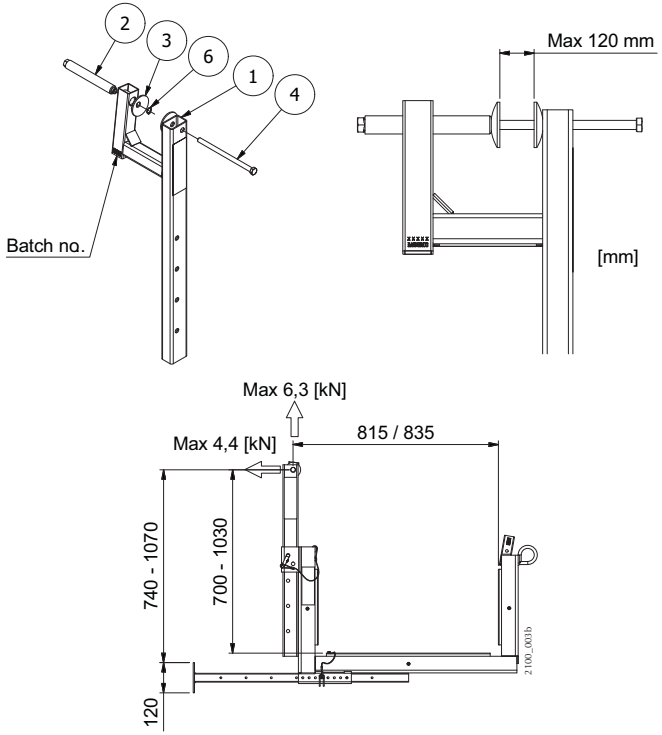

Figure 4. Hanging Platform Clamp

Item	Quantity	Part no.	Description	Weight:
1	1	10329	Hanging Platform Clamp Body	4.3 kg
2	1	10025	Clamp screw for Hanging Platform Clamp	0.6 kg
3	1	10013	Clamp cap	0.07 kg
4	1	100033	Screw M12-200	0.2 kg
5	1	100004	Starlock washer	-

Weight: 5 kg

Surface finish: Hot-dip galvanized/Electrogalvanized

The Hanging Platform Clamp is used to install the Hanging Platform to the roof truss heads.

2150 Keyhole Attachment

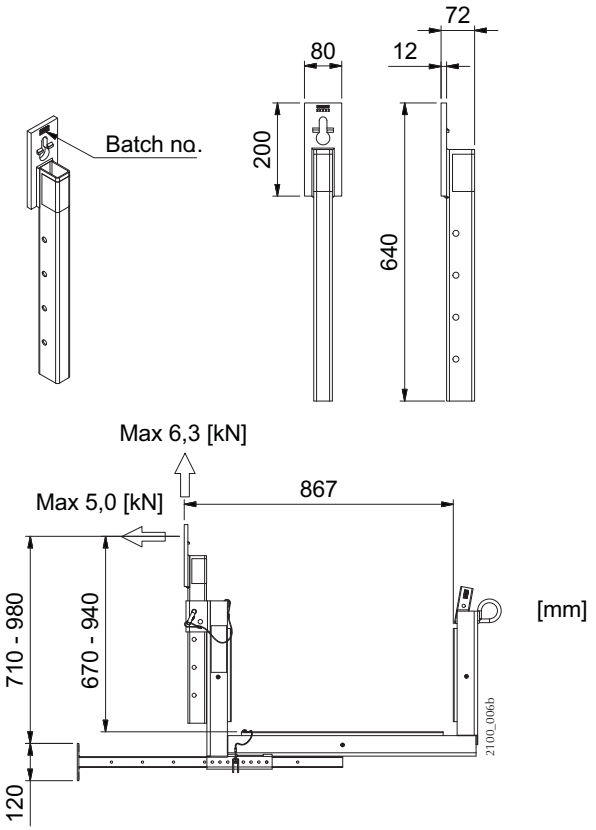

Figure 5. Keyhole Attachment

Weight: 3.6 kg

Surface finish: Hot-dip galvanized

The Keyhole Attachment is used when you want to install the Hanging Platform with a screw assembly, e,g. to a wall.

2140 Relocator

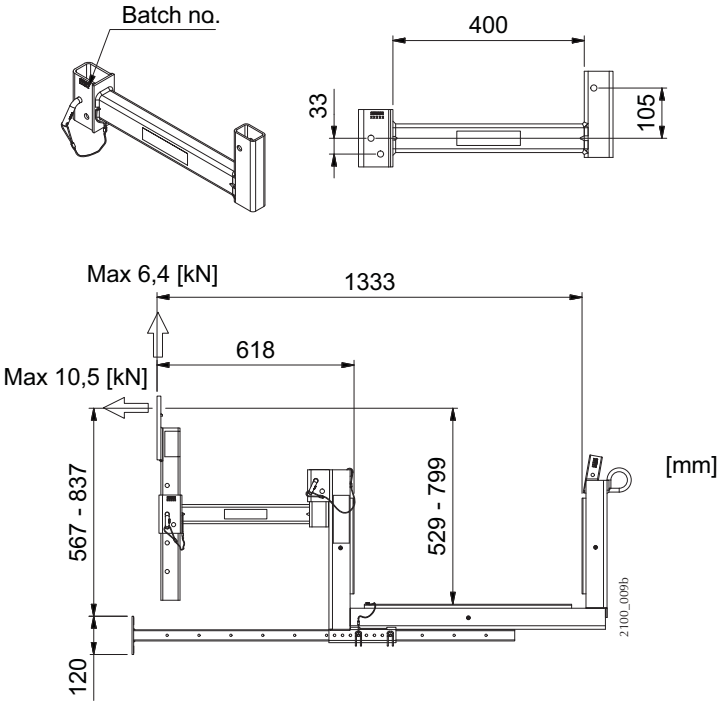

Figure 6. Relocator

Weight: 3.9 kg

Surface finish: Hot-dip galvanized

The Relocator is used when you want to extend the area of the Hanging Platform.

NOTE

Only use the Relocator together with the Keyhole Attachment and double Shaft Locking Pins in the Telescope Arm.

2170 Hanging Platform Beam

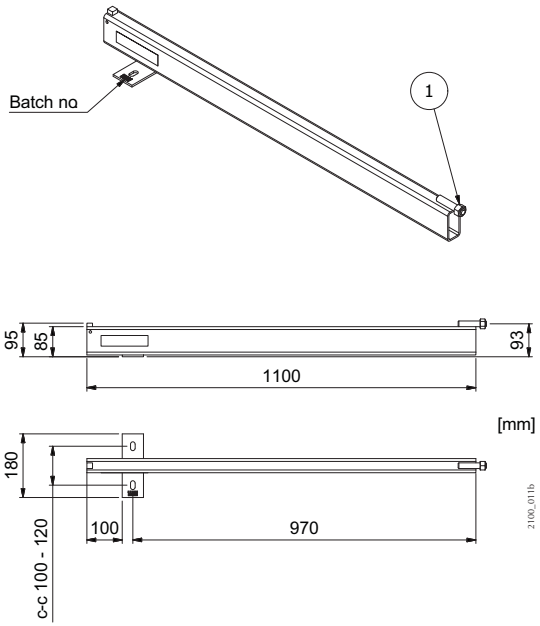

Figure 7. Hanging Platform Beam

Item	Quantity	Part no.	Description	Weight:
1	1	100041	Nut M16	-

Weight: 8.6 kg

Surface finish: Hot-dip galvanized

The Hanging Platform Beam is used when you want to install the Hanging Platform extending from an edge. The cantilever can be adjusted as necessary.

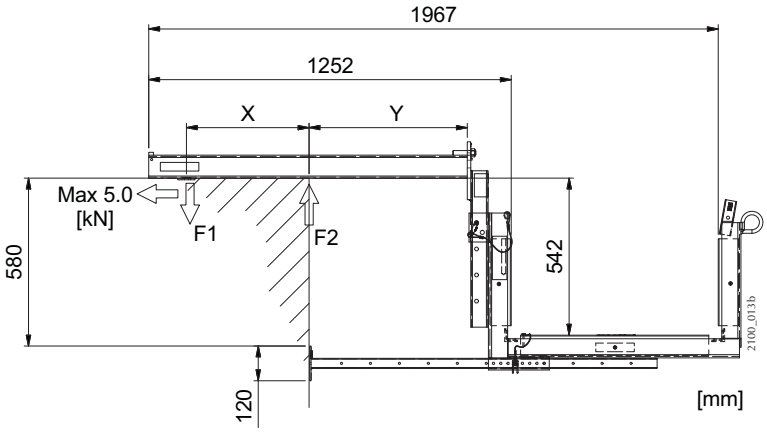

Figure 8. Hanging Platform Beam, dimensions and loads

X [mm]	Y [mm]	F1 [kN]	F2 [kN]
770	200	2.2	8.5
670	300	3.5	9.8
570	400	5.2	11.5
470	500	7.6	13.9
370	600	11.4	17.7

F1 are the forces that act on the attachment in the concrete. This consists of two expanders with a c-c distance of 100 mm.

2300 Steel Boardwalk

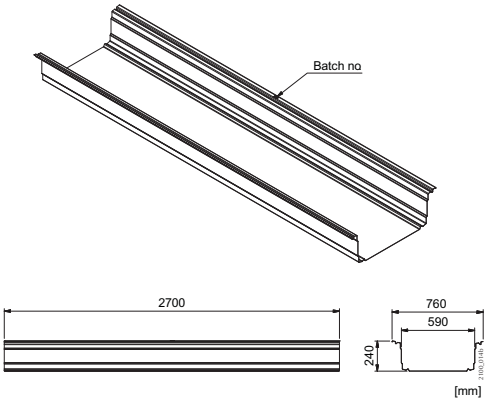

Figure 9. Steel Boardwalk

Weight: 26 kg

Surface finish: Hot-dip galvanized

The Steel Boardwalks are the actual walking surface in the system. They have many advantages over scaffold planks, but scaffold planks can still be used for the walking surface, see chapter *Assembly/Scaffold planks and toe board*.

1750/1751 Telescope Arm

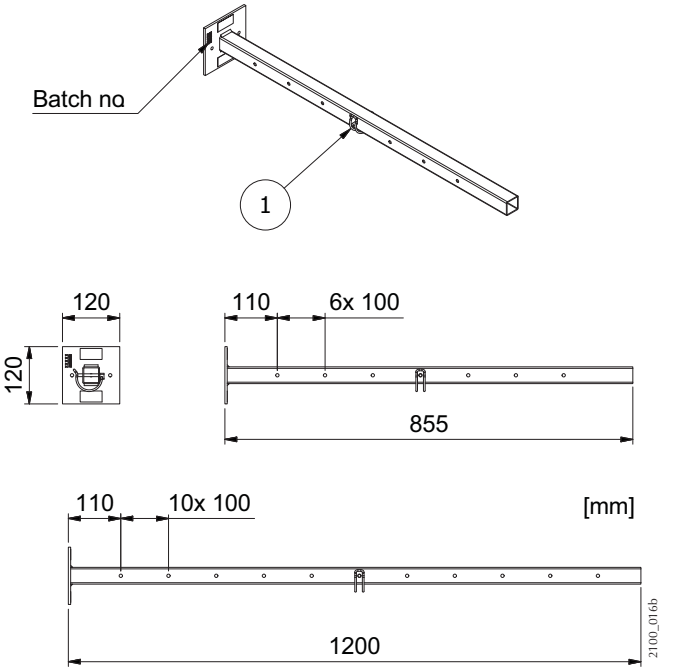

Figure 10. Telescope Arm

Item	Quantity	Part no.	Description	Weight:
1	1	100165	Shaft Locking Pin	-

When using the Relocator, use two Shaft Locking Pins.

Weight: 1750 - 2.3 kg, 1751 - 3.0 kg

Surface finish: Hot-dip galvanized

The Telescope Arm represents the support to the facade for the Hanging Platform system.

2110 Corner Platform Console

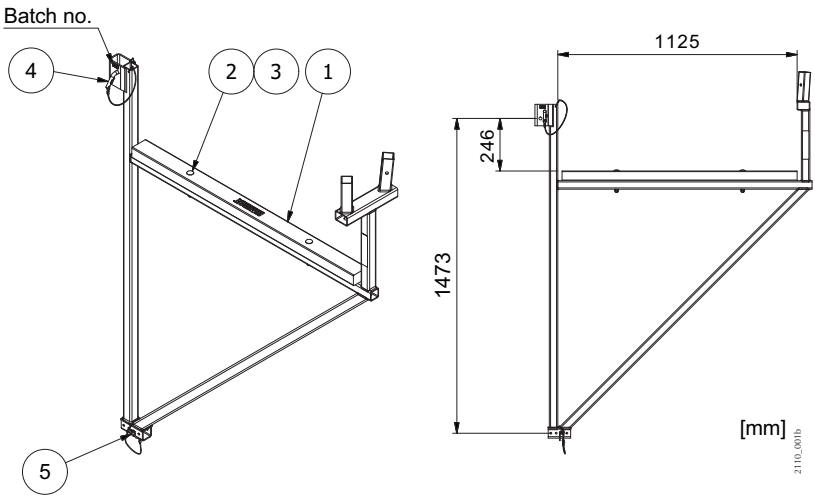

Figure 11. Corner Platform Console

Item	Quantity	Part no.	Description	Weight:
1	1	100229	Scantling	2.4 kg
2	2	100228	Screw	-
3	2	100027	Nut	-
4	1	1900	Lock Pin	0.1 kg
5	1	100165	Shaft Locking Pin	-

Weight: 21 kg

Surface finish: Hot-dip galvanized

The Corner Platform is wider than the Hanging Platform and is used in the corners.

2115 Corner Platform Attachment

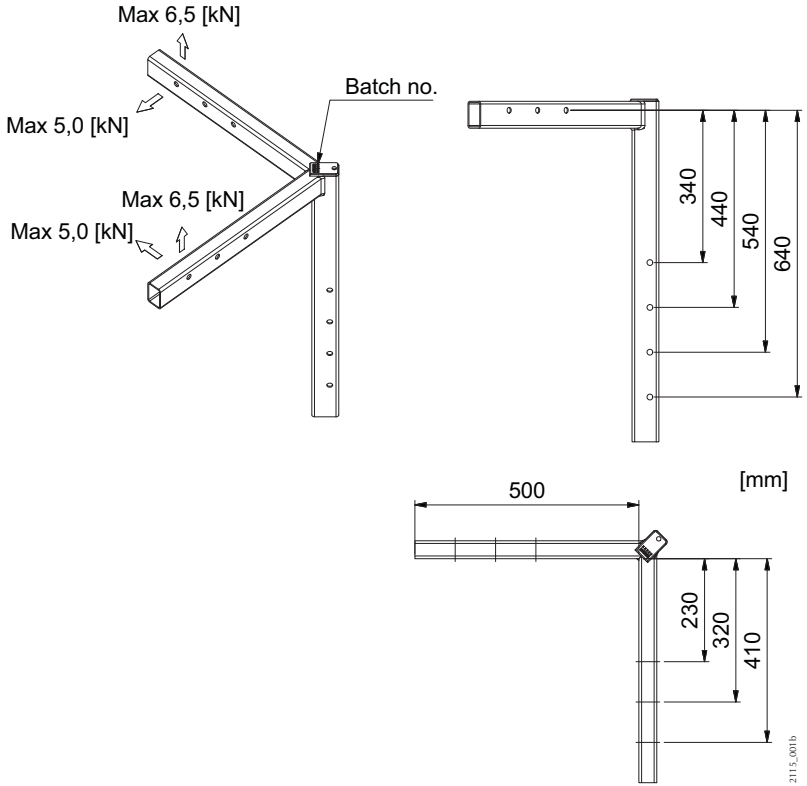

Figure 12. Corner Platform Attachment

Weight: 7.6 kg

Surface finish: Hot-dip galvanized

The Corner Platform Attachment is fixed to the corner of the facade.

2120 Corner Telescope Arm

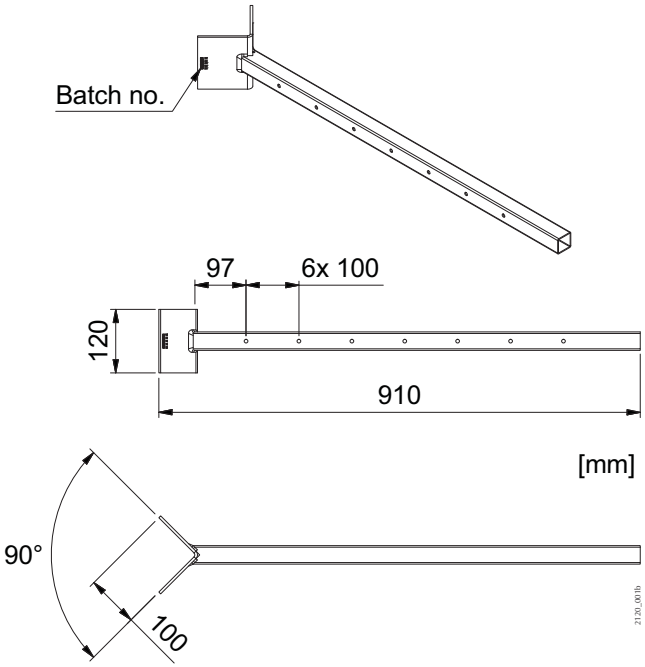

Figure 13. Corner Telescope Arm

Weight: 2.7 kg

Surface finish: Hot-dip galvanized

The corner Telescope Arm is adapted to support against a corner.

2135 Extension Bar

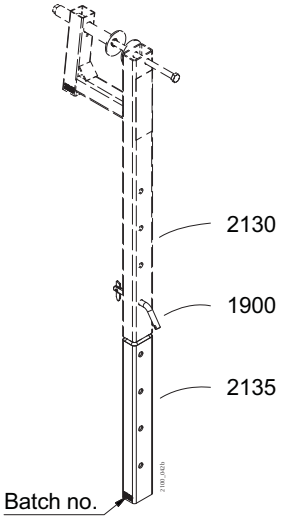

Figure 14. Hanging Platform Clamp with Extension Bar

Weight: 2.4 kg

Surface finish: Hot-dip galvanized/Electrogalvanized

The Extension Bar is used together with the Hanging Platform Clamp to install the Hanging Platform to the corner roof truss. Use part no. 1900, Lock Pin, to secure the extension on the hanging platform clamp.

1102 Safety Post

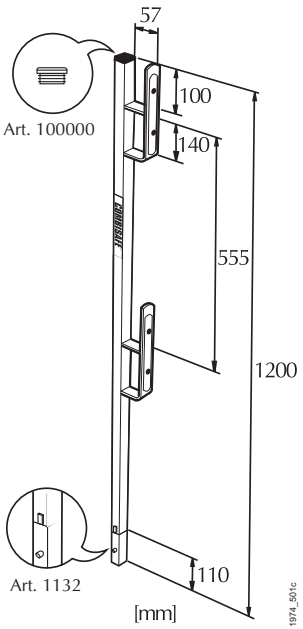

Figure 15. Safety Post

Weight: 3.5 kg

Surface finish: Hot-dip galvanized

The Safety Post is the load bearer for the guard rail.

2000 Safety Post

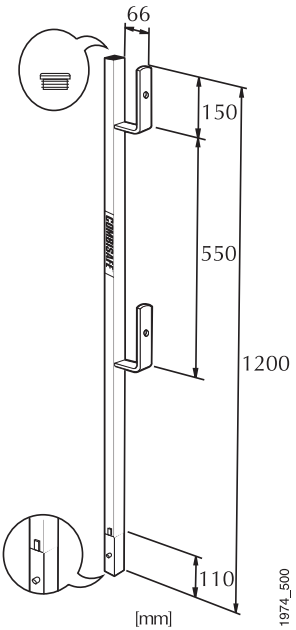

Figure 16. Safety Post

Weight: 3.6 kg

Surface finish: Hot-dip galvanized

The Safety Post is the load bearer for the guard rail.

3203 Steel Mesh Barrier

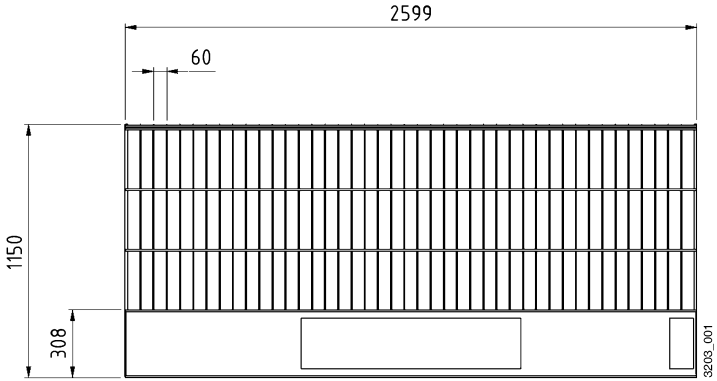

Figure 17. Steel Mesh Barrier

Weight: 19.5 kg

Surface finish: Phosphatized and powder coated in red

The Steel Mesh Barrier 3203 complies to the requirements in EN 13374 for classes A, B and C.

3204 Steel Mesh Barrier 1,3 m

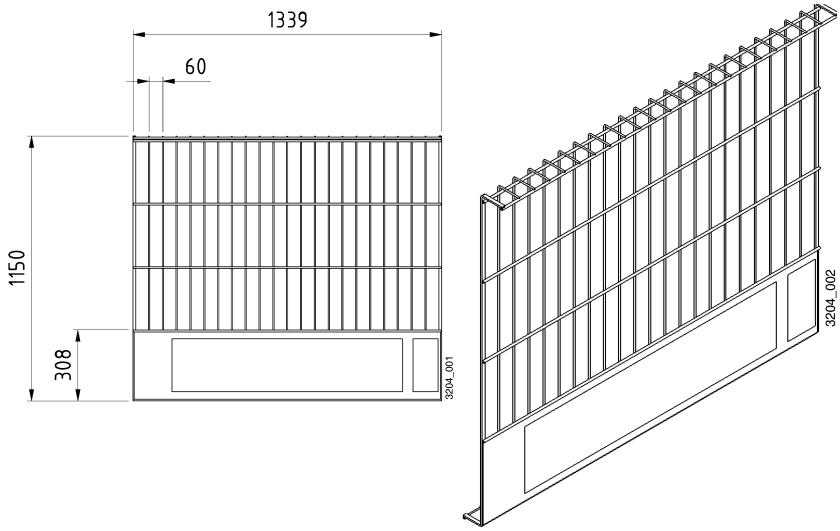

Figure 18. Steel Mesh Barrier 1,3 m

Weight: 10.5 kg

Surface finish: Phosphatized and powder coated in red

The Steel Mesh Barrier 1,3 m 3204 complies to the requirements in EN 13374 for classes A, B and C.

2201 Gable Gate

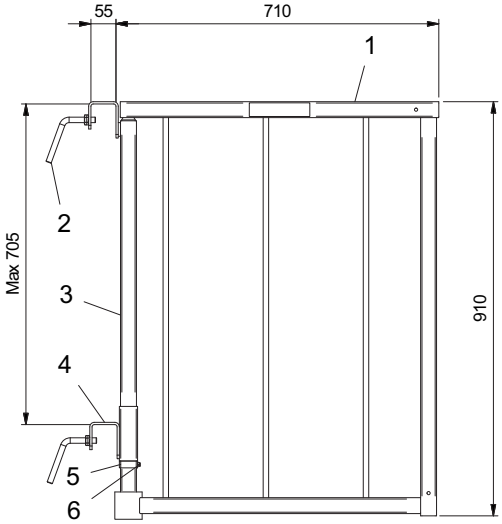

Figure 19. Gable Gate

Item	Quantity	Part no.	Description	Weight:
1	1	10564	Gate section	7.6 kg
2	2	10063	Screw	0.15 kg
3	1	10104	Post	2.9 kg
4	1	10103	Variable bracket	1.3 kg
5	1	10101	Locking ring	0.04 kg
6	1	100051	Tapping flange screw M5-16	-

Weight: 11.8 kg

Surface finish: Electrogalvanized/painted red

The Gable Gate is used as a rail at the end of the platform.

2220 Gable Gate Extension

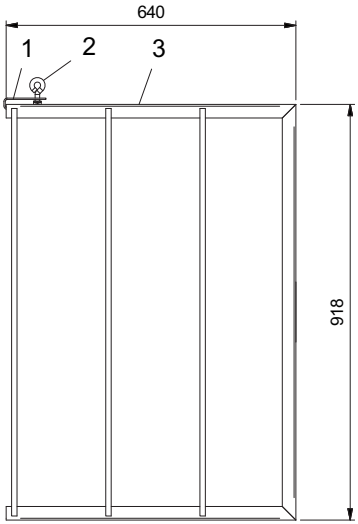

Figure 20. Gable Gate Extension

Item	Quantity	Part no.	Description	Weight:
1	1	10601	J-bracket	0.2 kg
2	1	100233	Eye bolt	0.07 kg
3	1	10602	Gate section	6.5 kg

Weight: 6.8 kg

Surface finish: Hot-dip galvanized

The Gable Gate Extension can be used to extend Gable Gate 2201.

3228 SMB Angle Console

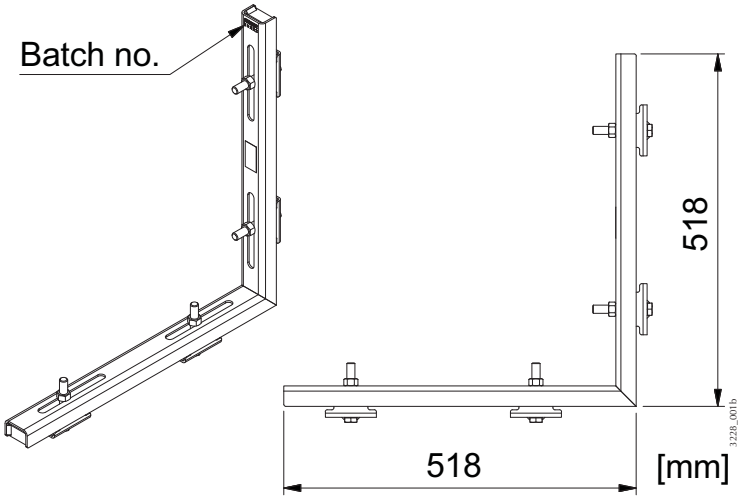

Figure 21. SMB Angle Console

Weight: 3.0 kg

Surface finish: Hot-dip galvanized

The SMB Angle Console is used to connect Steel Mesh Barriers and create a corner in the end of a Hanging Platform as an alternative to using the Gable Gate.

2305 End Toe Board

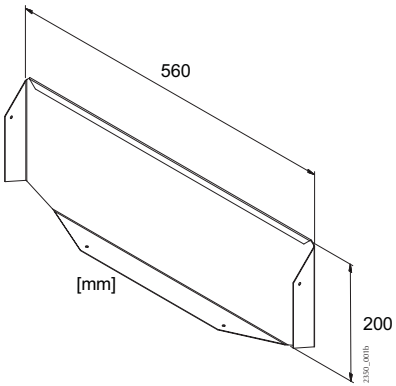

Figure 22. End Toe Board

Weight: 1 kg

Surface finish: Hot-dip galvanized/painted red

The End Toe Board is used at the ends of the Steel Boardwalk.

Assembly

General assembly and rigging might be affected by national regulations, beside the standards EN12810 and EN12811. Please make sure to check.

Hanging Platform Clamp

Max c-c distance is 2.4 m.

Take into consideration the loads from the Hanging Platform that affect the roof trusses and the facade.

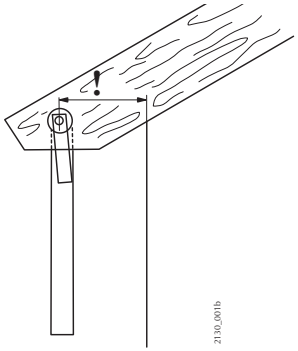

Figure 23. Hanging Platform Clamp

Check that the roof truss is free from cracks and knots or other defects that might affect strength.

1. Drill a 15 mm hole in the roof truss end as per the picture below. The dimensions refer to the distance from the hole to the edge of the roof truss. In the direction of the grain this must be at least 120 mm, and the distance at right angles to the grain must be at least 60 mm.

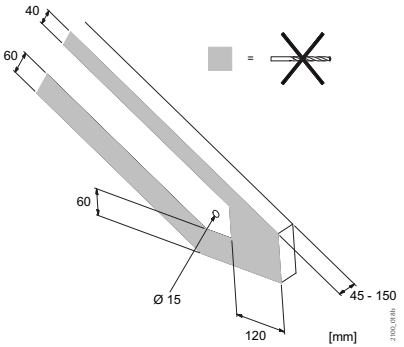

Figure 24. Dimensional draft

2. Place the Hanging Platform Clamp over the hole. The Hanging Platform Clamp can be placed in two different directions depending on which side of the roof truss you want to suspend the Hanging Platform Console, as well as where the support to the facade ends up.
3. Attach the Hanging Platform Clamp using the M12x200 screw through the hole. Thread the M12 screw in the clamp screw's internal thread to the bottom. Check that the Hanging Platform Clamp is hanging plumb and tighten securely.

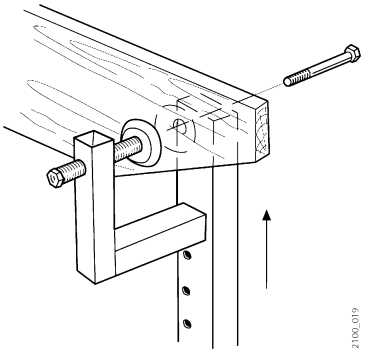

Figure 25. Placement of Hanging Platform Clamp

Keyhole Attachment

Max c-c distance is 2.4 m.

Take into consideration the loads from the Hanging Platform that affect the attachment and the facade.

1. Fit the Keyhole Attachment in the form of expander, and through thread support or equivalent. See instructions from the expander manufacturer or equivalent.
2. Fit the Keyhole Attachment on to the stud. The Keyhole Attachment is sized to accept an M16 fixing.
3. Check that the Keyhole Attachment is hanging plumb and tighten securely.

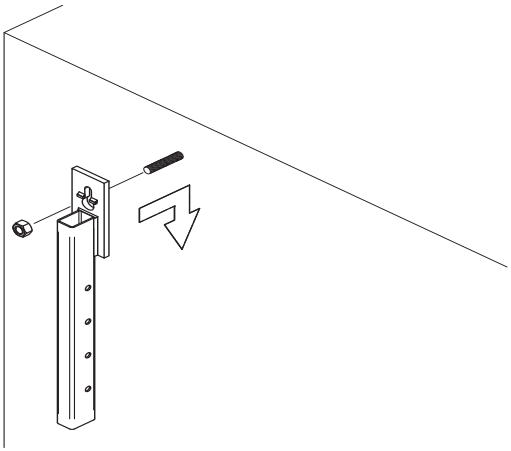

Figure 26. Assembly of Keyhole Attachment

Alternative assembly of Keyhole Attachment
As an alternative the Hanging Platform Console, Telescope Arm and Keyhole Attachment can be fitted together before being suspended.

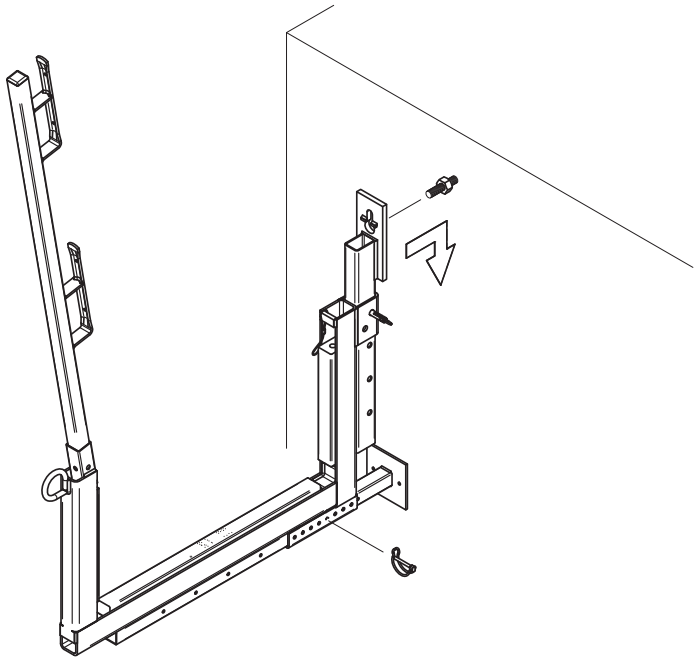

Figure 27. Alternative assembly of Keyhole Attachment

Hanging Platform Beam

Max c-c distance is 2.4 m.

1. Decide how much of the Hanging Platform Beam needs to protrude. Take into consideration the loads from the Hanging Platform Beam when selecting the fixings and ensure the capacity of the support edge. These loads affect the length of cantilever.
2. Fit the Hanging Platform Beam using suitable fixings.

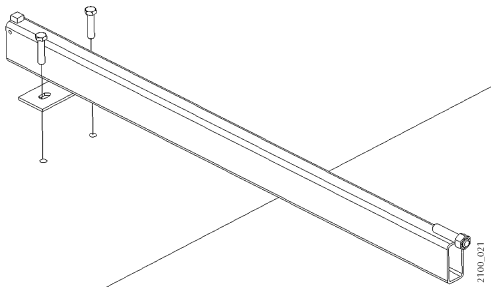

Figure 28. Assembly of Hanging Platform Beam

3. Fit the Keyhole Attachment on the Hanging Platform Beam screw.
4. Check that the Keyhole Attachment is hanging plumb and tighten the screw.

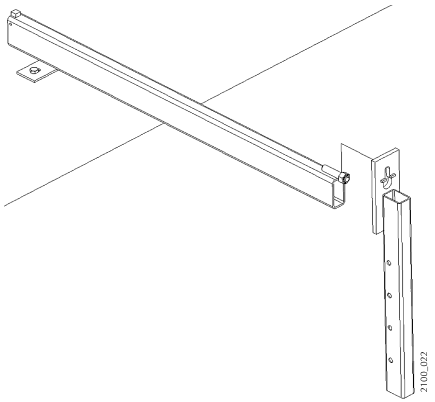

Figure 29. Assembly of Keyhole Attachment on Hanging Platform Beam

Relocator

Max c-c distance is 2.4 m.

Take into consideration the increased fixing load when using the Relocator, and ensure the suitability of both fixing and base material.

1. Fit the Keyhole Attachment as *per* the assembly of *Keyhole Attachment* instructions.
2. Fix the Relocator at a suitable height on the Keyhole Attachment using the Lock Pin supplied.

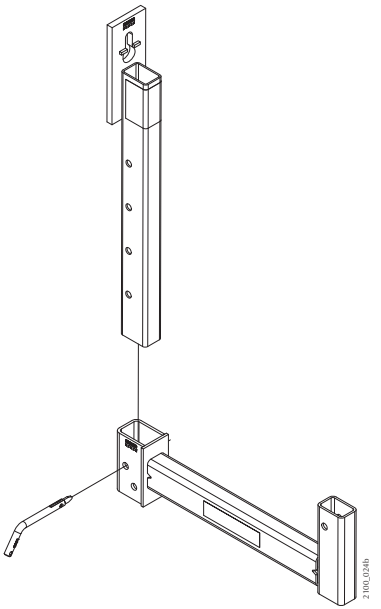

Figure 30. Assembly of Relocator

NOTE

Only use the Relocator together with the Keyhole Attachment.

Alternative assembly of Relocator
Fit the Relocator on the Keyhole Attachment before mounting on the facade. Fix the Relocator at a suitable height using the Lock Pin supplied.

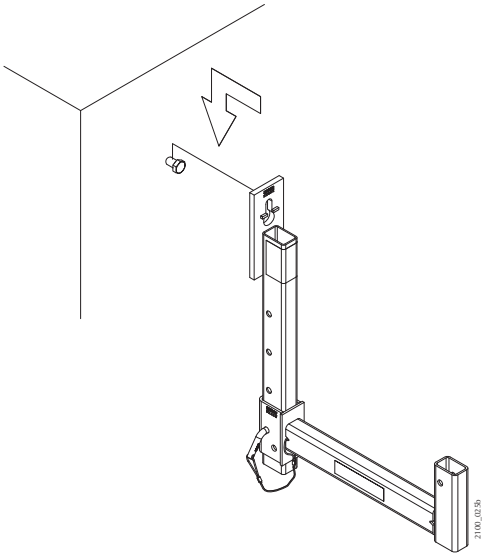

Figure 31. Alternative assembly of Relocator

Hanging Platform Console and Telescope Arm

1. Check that the facade can accept the load applied through the Telescope Arm. The force applied by the Telescope Arm is equivalent to the pull out load applied to the fixing.
2. Fit the Telescope Arm into the Hanging Platform Console. Select the appropriate Telescope Arm and adjust it to set the Hanging Platform Console level. The simplest way of doing this is to test a Hanging Platform Console with a Telescope Arm and adjust the Telescope Arm to the correct dimensions.
3. Secure the Telescope Arm with the Shaft Locking Pin supplied.

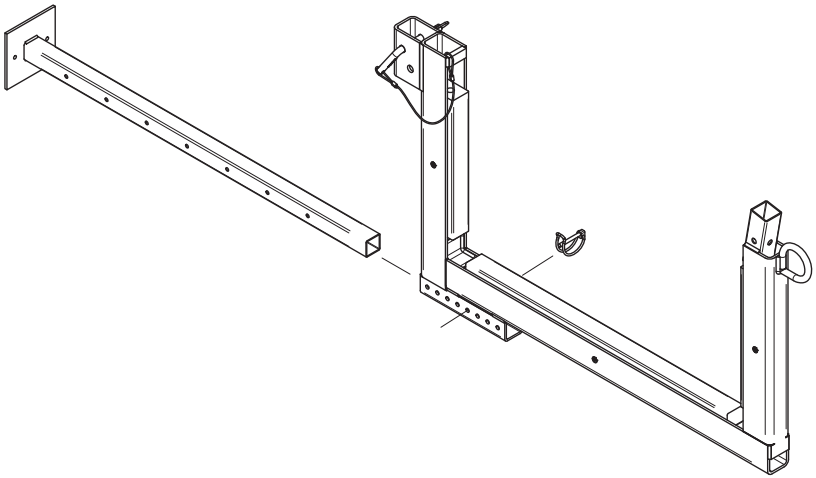

Figure 32. Telescope Arm

NOTE

If a Relocator is used, the Telescope Arm is attached using two Shaft Locking Pins.

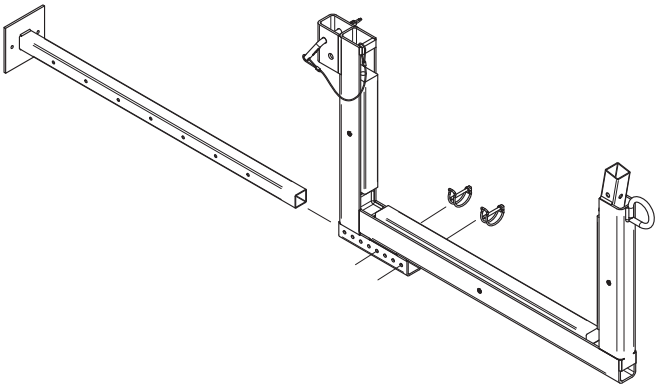

Figure 33. Anchoring of Telescope Arm

4. Fit the Hanging Platform Console at a suitable height on the attachment. Fix the Hanging Platform Console using the Lock Pin supplied.

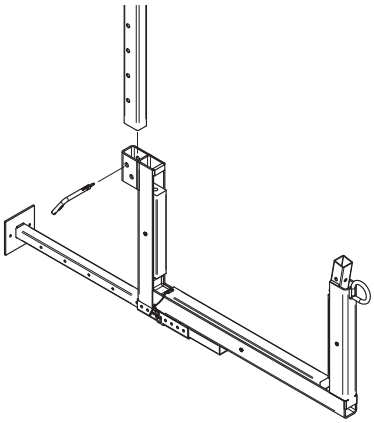

Figure 34. Fixing the Telescope Arm

5. Check that the Telescope Arm provides proper support from the facade.

Assembly of Corner Platform

The Corner Platform can be assembled in two ways: using a Corner Platform Attachment or extended Hanging Platform Clamp.

Assembly with Corner Platform Attachment

1. Fit the Corner Platform Attachment using a suitable fixing on each side of the corner. Each anchor must be capable of accepting a combined load of 5.0 kN in withdrawal load and 6.3 kN in shear. With some fixings it may be possible to drill straight through the Corner Platform Attachment, using it as a drill guide. Now continue to assemble the Corner Platform as per item 2, chapter *Assembly with extended Hanging Platform Clamp*.

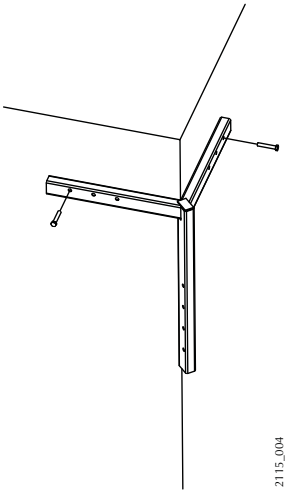

Figure 35. Assembly of Corner Platform Attachment

Assembly with extended Hanging Platform Clamp

This assumes that the roof truss protrudes at a 45° angle in the corner. Check the bearing capacity of the roof truss.

1. Fit an extended Hanging Platform Clamp to the corner roof truss, see chapter *Assembly/Hanging Platform Clamp.*

2. Fit the Corner Telescope Arm in the Corner Platform and adjust the length. This can be adjusted later on site, but it helps if the length is right from the beginning. Fix the Corner Telescope Arm with the Shaft Locking Pin supplied.

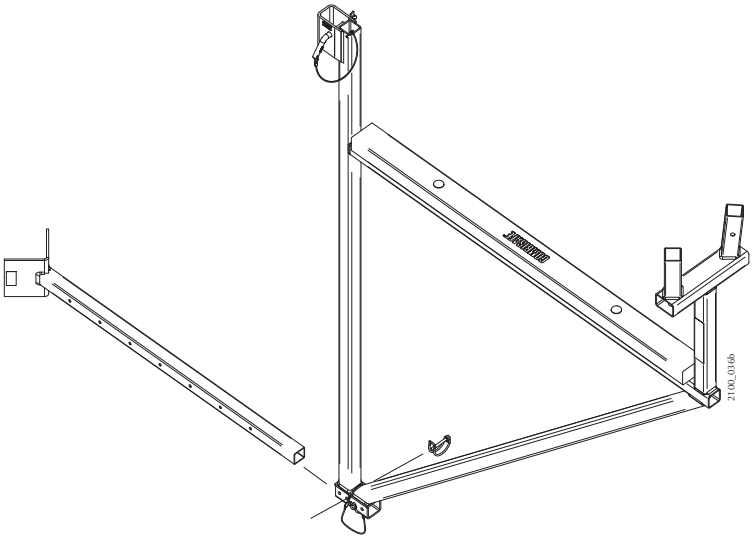

Figure 36. Assembly of Corner Telescope Arm on Corner Platform

3. Fit the Corner Platform on the Corner Attachment or Clamp. Lock the Corner Platform using the Lock Pin supplied at the same height as nearby Hanging Platforms.

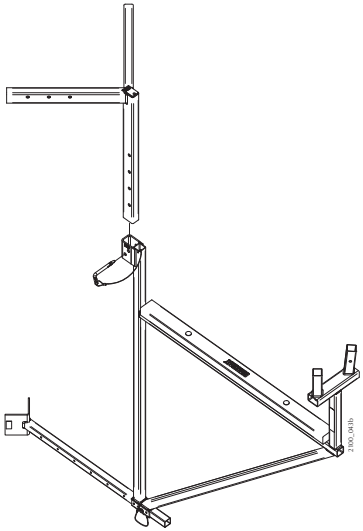

Figure 37. Assembly of Corner Platform on Corner Attachment or Clamp.

4. Fit the Steel Boardwalks or scaffold planks as walking surface.

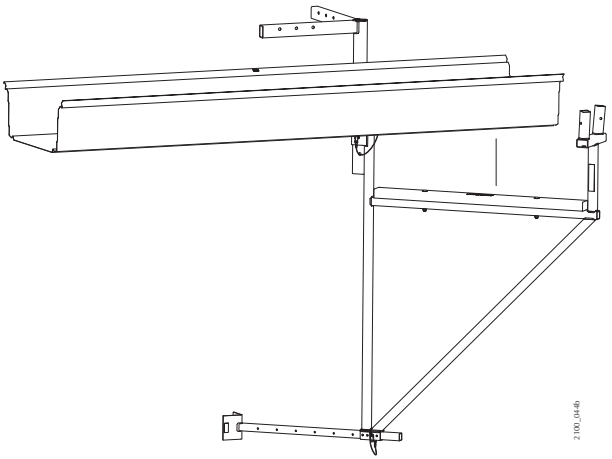

Figure 38. Assembly of Steel Boardwalk on Corner Platform

5. Steel Boardwalks adapted for use in corners can be ordered from Combisafe. They are available in two variants, for right hand corners (Part no. 2310) and left hand corners (Part no. 2315). The Steel Boardwalks must be laid overlapping on the corner platforms. Fix the Steel Boardwalks with screws in the hanging platform bracket's wood inserts. It is also possible to cut a "normal" boardwalk panel to be used for the corner platform. This is done by cutting off the toe board on one side of the panel, 530 mm in from the end. Different sides of the panel must be cut depending on which side of the corner the panel is to be positioned.

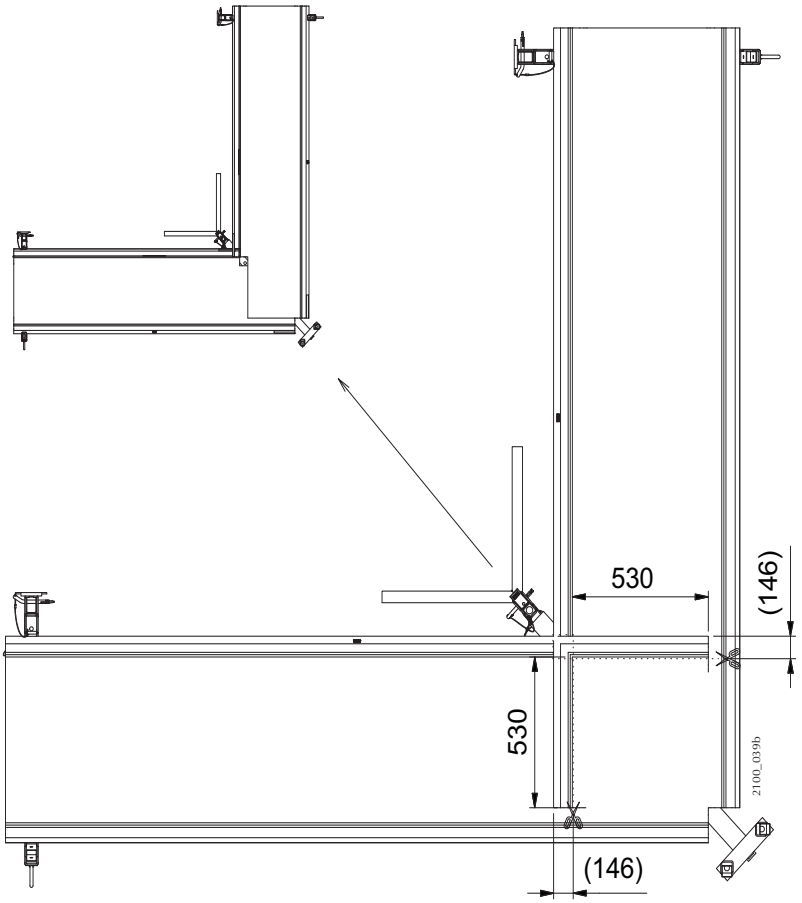

Figure 39. Placement and cutting of Steel Boardwalks

Inner corner

The Corner Platform can also be used as an inner corner uassuming that an attachment can be fitted.

In order for a Corner Telescope Arm to give support in an inner corner, you have to insert a wooden block in it. Either drill a hole in the bent steel section in the corner Telescope Arm enabling you to nail or screw a wooden block to it, or fit the wooden block in the corner of the building so that the Corner Telescope Arm gets support from it.

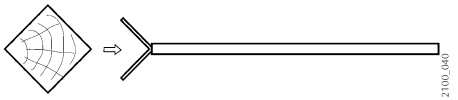

Figure 40. Wooden block and Corner Telescope Arm

Steel Boardwalk

1. Assemble the Steel Boardwalks in the Hanging Platform Consoles.
2. Fix the Steel Boardwalks using screws in the Hanging Platform Consoles' wood inserts.

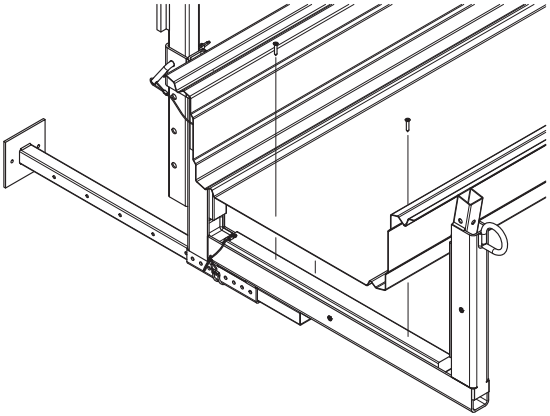

Figure 41. Fixing the Steel Boardwalks

3. Overlap the Steel Boardwalks on the Hanging Platform Consoles. The minimum overlap over the Hanging Platform Console is 100 mm. The maximum free protrusion in the end is 200 mm.

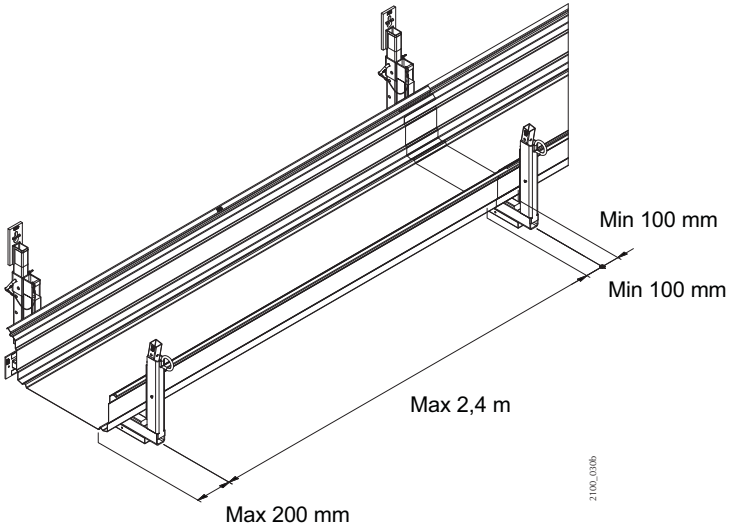

Figure 42. Steel Boardwalk protrusion

Scaffold planks and toe board

Scaffold planks can be used instead of Steel Boardwalks.

Scaffold planks must be 45 mm thick and have a minimum of strength class C24. National regulations might apply.

1. Fit the scaffold planks across the width and anchor these using nails or screws in the wood inserts of the Hanging Support Console.

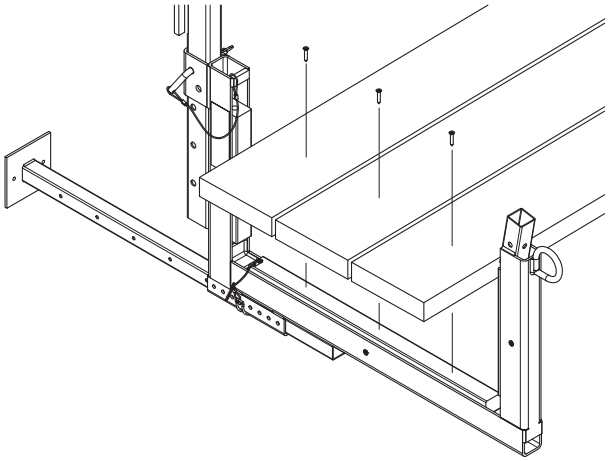

Figure 43. Assembly of scaffold planks

2. The scaffold plank is joined by staggering them on the Consoles. Where possible use a wedge at overlaps to avoid the risk of stumbling. The minimum overlap over the Console is 100 mm. The maximum free protrusion in the end is 200 mm. Where possible, secure the boards together to aviod a single board deflection.

3. Attach the toe boards to the walking area by nailing or screwing these to the Hanging Platform Console's upright wood inserts. Horizontal outward bowing of the toe board must not exceed 35 mm.

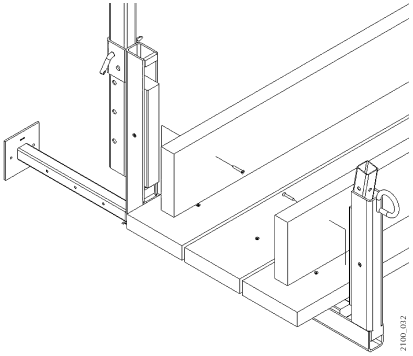

Figure 44. Assembly of toe boards

Safety Post and Steel Mesh Barrier 3203

1. Fit the Safety Posts into the attachments on the Hanging Platform Consoles, with the brackets facing inwards.
2. Press in Quiclox and press the Safety Post down into the attachment. The Safety Post is locked when Quiclox snaps out in the hole in the attachment.

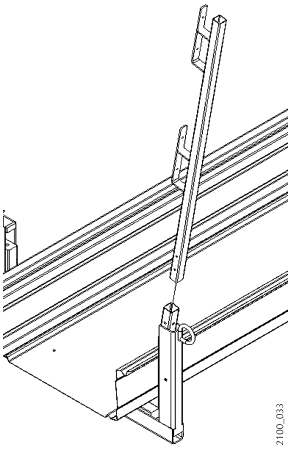

Figure 45. Assembly of Safety Post

3. Fit the Steel Mesh Barriers onto the Safety Posts by suspending them over the Safety Posts and brackets. Both brackets on the Safety Post must go through the mesh: the top of the Safety Post must go up through the top edge of the Steel Mesh Barriers.

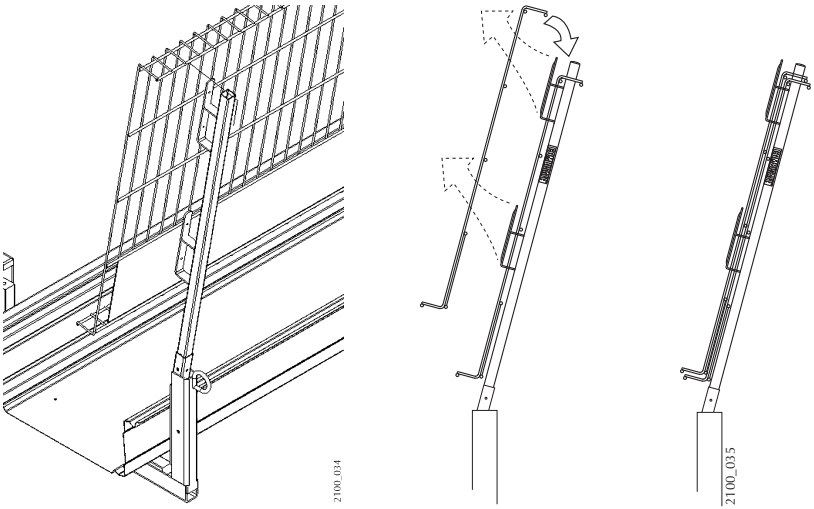

Figure 46. Assembly of the Steel Mesh Barrier

End Toe Board

Attach the End Toe Board onto the Steel Boardwalks using four screws. We recommend fitting the end sections onto the Steel Boardwalks on the ground before lifting into position.

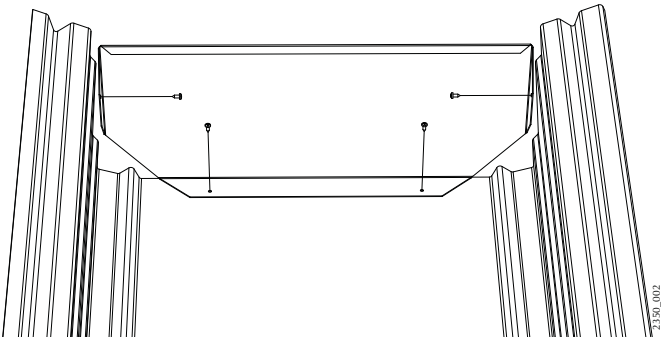

Figure 47. Assembly of End Toe Boards

Gable Gate

One of two methods of enclosing also the ends of the hanging Platform is using a Gable Gate.

In order to fit the Gable Gate to the end of the platform, a guide is needed. This is formed by fitting two pieces of wood 45x95 mm into the last two Safety Posts. Fit the wooden guides into the post brackets outside of the Steel Mesh Barriers. Let the wooden rails protrude around 150 mm beyond the edge of the Steel Mesh Barrier. Attach the guides to the Safety Posts using nails or screws. Fit the Gable Gate onto the wooden guides by placing the Gable Gate's channeled sections over the guides and tightening the attachment screws on the channeled sections. If necessary the Gable Gate 2201 can be combined with a Gable Gate Extension 2220.

Steel Mesh Barrier 1,3 m 3204

Another method of closing the end of the platform and make sure the working area is fully screened is using a Steel Mesh Barrier 1,3 m 3204 combined with SMB Angle Consoles 3228 to interconnect the Steel Mesh Barriers.

Mount the two SMB Angle Consoles 3228 to the longitudinal Steel Mesh Barrier 3203 first and make sure they are positioned close to the bottom and top of the Barrier, as far apart as possible. Put the shorter Steel Mesh Barrier 1,3 m 3204 into position perpendicularly and secure it to the two SMB Angle Consoles.

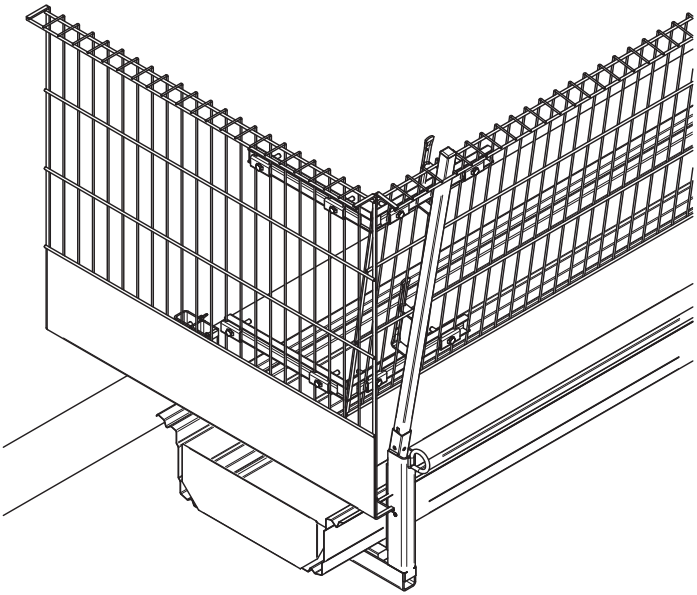

Figure 48. Closing end of platform by using Steel Mesh Barrier 1,3 m 3204 and SMB Angle Consoles 3228

Inspection

Inspection after assembly

The completed installation must be inspected prior to handover.

The following checklist should be used:

Checklist for installing the Hanging Platform

- Has the Hanging Platform been inspected and does it conform to the local regulations?
- Is the max c-c distance 2.4 m?
- Are the mounting points strong enough?
- Does the support to the facade have adequate bearing capacity or inserts?
- Is the working surface fixed down?
- Are the toe boards fitted?
- Is the guard rail strong enough? Do not use wood for slopes over 10º.
- Are the gables protected?
- Are there access routes?
- Are the Hanging Platform Consoles properly anchored?

Hanging Platform Clamp

- Is the distance to the edge of the holes in the roof truss correct?
- Are the through screws and clamps properly tightened?
- Is the A dimension correct?

Keyhole Attachment

- Is the fixing suitable for the base material and correctly installed, edge distance etc.?
- Is the Keyhole Attachment properly fitted?

Hanging Platform Beam

- Is the fixing suitable for the base material and correctly installed, edge distance etc.?
- Have the cantilever loads been correctly assessed and considered?
- Is the Keyhole Attachment properly fitted?

Relocator

- Is this used together with the Keyhole Attachment?
- Is it correctly fitted to the Keyhole Attachment?
- Is the Telescope Arm attached with two screws?

Dismantling

The installation procedure should be performed in the reverse order when dismantling.

Remove the Safety Post from the Hanging Platform Console by pressing in Quiclox and pulling out the Safety Post.

Pack the Steel Mesh Barriers correctly in the mesh boxes, see instructions for packing the Barrier Box.

Maintenance

Safety checks

Safety checks are to be made before use and after dismantling and before parts are placed in the store.

Safety checks are to be carried out by competent personnel. Combisafe recommends that only competent personnel trained by us carry out the safety checks.

Check that:

- No parts are cut or joined.
- No parts are buckled or heavily bent/damaged.
- No new drill holes have been made.
- No corrosion has occurred that can affect strength.
- No visible cracks have occurred in welds or the material.
- Parts fit together, e.g. that Safety Posts fit in the Hanging Platform Consoles and that attachments and Telescope Arms fit in the Hanging Platform Consoles.

Reconditioning

Repairs can be performed on parts that have been rejected by the safety check, according to the following conditions.

Reconditioning must be carried out by competent personnel. Combisafe recommends that only competent personnel trained by us carry out such work.

Recondition according to the following guidelines:

- Clean the parts.
- Only cold processing is permitted.
- Parts that after straightening show any indication of fracture may not be used, they must be scrapped instead.
- Replace damaged parts that can not be reconditioned and parts that have been lost during handling.

Scrapping

Those parts identified during the safety checks and which have not been possible to recondition should be discarded and destroyed so that they can not be used.

Most Combisafe products are manufactured of steel and can be scrapped as steel in their entirety. Some non conformity does occur, check with Combisafe if in doubt.

Storage

Store Combisafe products protected from external influences in a dry and ventilated area protected from the effects of the weather and from corrosive substances.

COMBISAFE®