SIEMENS

ST950/ Plus+

Controller Cabinet Stool Installation Method Statement

Sept-19

Issue 1

Change History

Rev	Date	Change	Author
1	Dec 2019	First Issue	Neil Atkinson

The electronic version of this handbook can be found on the Siemens website www.siemens.co.uk/traffic in the Handbooks section under Downloads.

SAFETY INFORMATION

Safety of Road Users

It is important that all personnel are aware of the dangers to road users that could arise during repair and maintenance of traffic control equipment.

Ensure that the junction area is coned and signed where necessary to warn motorists and pedestrians of any dangers and to help protect the personnel working on the site.

CONTENTS

1 INTRODUCTION

1.1 Purpose

The purpose of this handbook is to describe the approved Siemens installation procedures for the ST900/ ST950 stool product range manufactured by Siemens, this includes the standard stool and the Plus+ stool.

Status of Development

Ongoing development means that some of the delivered items may differ in detail from the photographs included in this handbook.

1.2 Contact Us

If you have any comments on this handbook, or need any further information, you can contact us at trafficwebmaster.stc@siemens.com.

2 INSTALLATION OF THE STANDARD SIEMENS MOBILITY CONTROLLER STOOL

2.1 Installation of Standard Stool Frame

1. Excavate a pit in the ground to suit the stool size. Refer to Figure 1.
2. Locate and prepare the ducting to enter the controller base in a suitable position.
3. Create a flat level base layer either with concrete or a flagstone of at least 900mm x 600mm embedded securely at the bottom of the hole. ***Note - Ensure that enough clearance is left around the stool to enable the fitting of the outer case fixings.***

Installation on a Slope

If the controller is being installed on a slope, allowance must be made for the opening of the door adjacent to the uphill side.

4. Place the controller stool in the centre of the level base layer / flagstone with the top surface between 50 and 75 mm above the final ground level. ***Note - It is essential that the stool be fitted the correct way around with the holes positioned so that the front of the stool is the cabinet door side, as shown in Figure 1. Adjustment may be required to ensure that the outer case sides are vertical; this should be checked using a spirit level on the stool mounting surfaces.***
5. Mix up a stiff mixture of concrete (mix: 1 cement, 3 sand, 4 coarse aggregate (20mm) with no excess water) and cover the flagstone or level base to a height approximately 100mm (4") above the bottom of the stool. The concrete must be sloped to provide a run up for the cables. ***Note - Any cables already entering the pit must be held away from the wet concrete. Where there is a risk of freezing, then a suitable antifreeze additive shall be incorporated in the concrete mix to ensure proper curing.***

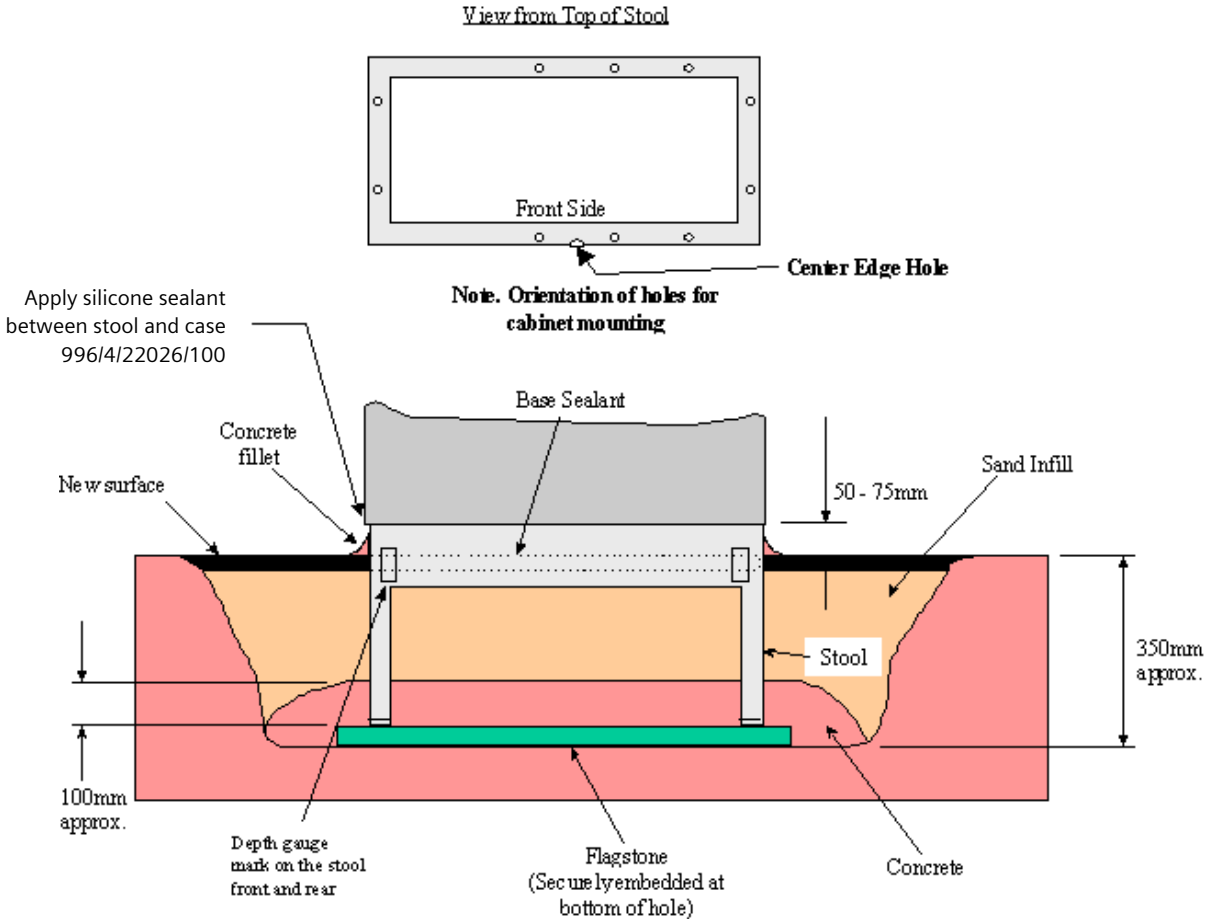

Figure 1 - Stool Installation with flagstone

2.2 Back-fill and In-fill the Stool

On completion of the cable installation and testing the controller cabinet and stool can be back-filled by using the appropriate material for the site layout. Once the back-fill is completed in-fill with kiln dried sand, taking care that the compacted sand is at ground level when finished.

If any of the cables were replaced or moved during the installation of the controller cabinet then the kiln dried sand in-filling must be made good before the sealing compound is introduced.

NOTE: The back-fill must be brought to a level such that once the decorative top surface is completed the finish is at the surrounding ground level, particularly paying attention to any hard standing around the controller base.

2.3 Sealing the Base

To prevent condensation and infestation in the controller cabinet the base **MUST** be sealed as soon as possible after the controller has been installed. If any of the cables were replaced or moved during the installation of the controller the kiln dried sand in-filling must be made good before the sealing compound is introduced.

Siemens base seal kit part number 667/1/20214/000 OR GB7:4/MC3584 SEALANT ISP PC5882-BLACK is recommended for sealing the base.

Guidance for In-Filling

The in-filling, kiln dried sand, must be brought to ground level or above and compacted. Make sure that the kiln dried sand is level or slightly sloped down where it meets the cables so it will not prevent the sealant meeting the cable.

The sealant should be poured all around the cables and to a height which, when the sealant is set, gives a total covering not less than 6.5mm thick over the base of the controller cabinet base. Use between 2.0 to 3.0 litres of approved epoxy resin for the large controller cabinet base and 2.0 Litres for the small controller cabinet base this will give an adequate and even cover.

This will act as a preventative barrier against the ingress of moisture and animal/insect infestation.

A concrete fillet around the outside of the stool may be completed before or after the epoxy sealing to suit site conditions.

Protection of Circuits

Should the controller cabinet base/stool NOT be in-filled with kiln dried sand and sealed with an approved epoxy resin the controller electronics/electrical circuits may be damaged.

3 INSTALLATION OF A PLUS+ CONTROLLER STOOL

3.1 Installation of a Plus+ Cabinet Stool Frame

1. Refer to Figure 2 for the general method of installation and dimensions.
2. Excavate a pit in the ground approximately 100cm long x 70cm wide x 450cm deep.
3. Locate and prepare the ducting to enter the controller base in a suitable position, Figure 3.
4. Create a flat level base layer either with concrete or a flagstone of at least 900mm x 600mm embedded securely at the bottom of the pit.
5. Remove the Sealed Base Kit, Step 1 Figure 2 from the top of the stool and set to one side being careful not to damage any studs or lose any fixings and keeping the kit in the protective bag provided.
6. Place stool into the centre of the level base layer. ***Note - It is essential that the stool is fitted at the correct height and that the access door can be accessed. Make sure that the stool door is facing the same way as the cabinet door will open. Adjustment may be required to ensure that the outer case sides are vertical; this should be checked using a spirit level on the stool surfaces.***

Guidance for Stool Height

The stool has dimples on the side to indicate recommended install height with ground level

Guidance for Stool Height

If the controller is being installed on a slope, allowance must be made for the opening of the door adjacent to the uphill side.

7. Mix up a stiff mixture of concrete (mix: 1 cement, 3 sand, 4 coarse aggregate (20mm) with no excess water) and cover the base layer/ flagstone and stool legs to a height approximately 100mm (4") above the bottom of the stool. **Note - *Cables already entering the pit must be held away from the wet concrete. Where there is a risk of freezing, then a suitable antifreeze additive shall be incorporated in the concrete mix to ensure proper curing.***
8. Using suitable sized cut paving slabs or similar, shutter all around the stool to prevent concrete from entering the area within the stool, Figure 4.
9. Backfill around the stool with more concrete or other suitable material substrate, Figure 5.
10. Make good up to the surface level with asphalt or other material to match original surface.
11. If the cabinet is not going to be installed to the stool at the same time then the stool must be capped to ensure it is safe to leave by bolting the Sealed Base Kit back to the stool, Step 3 Figure 2. ***Note - Ensure that the studs are facing downwards. If the Sealed Base Kit***

cannot be fixed with the studs facing downwards then the Temporary Plus+ Cabinet Stool Lid can be used (667/2/53028/000).

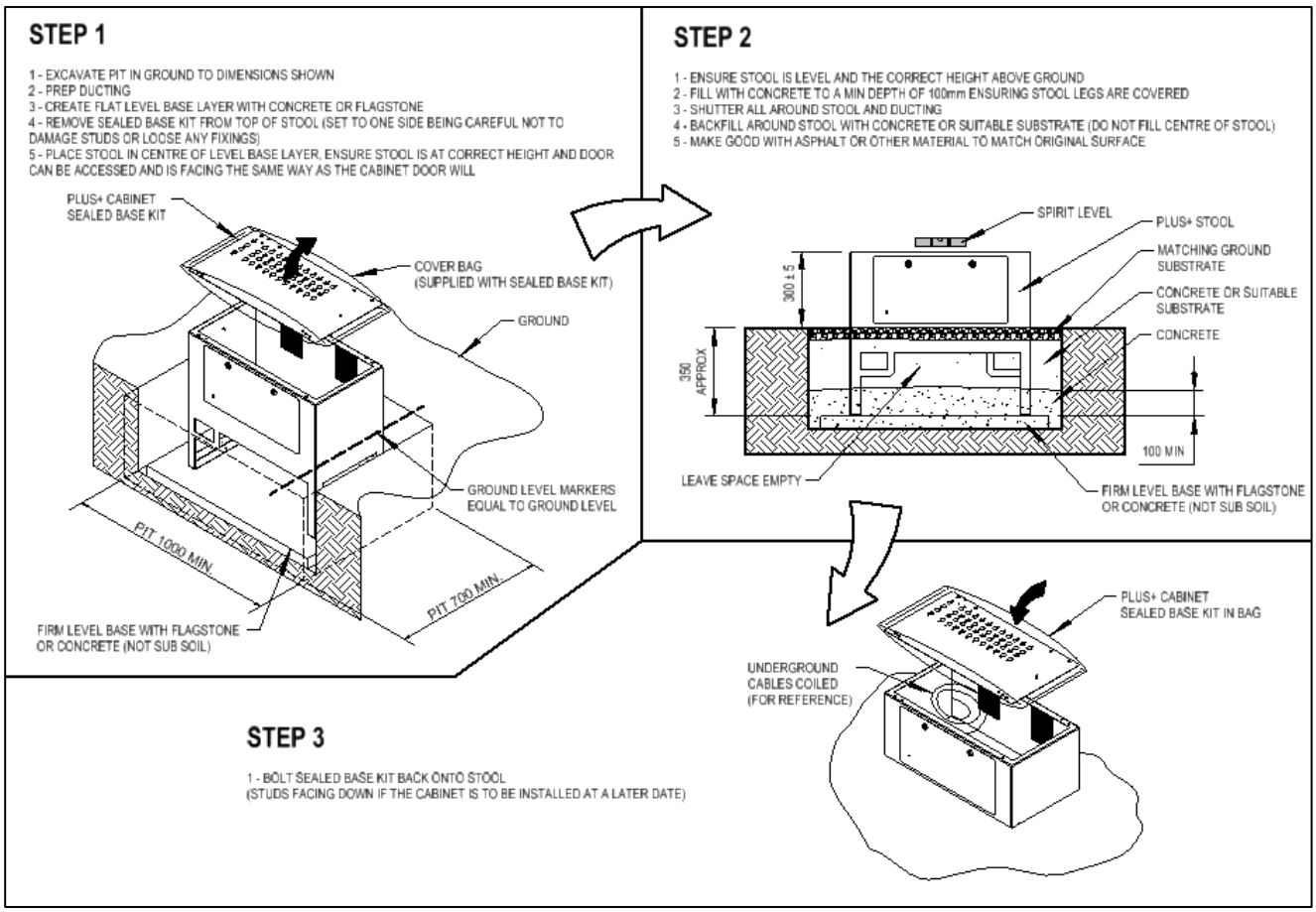

Figure 2 – Plus+ Stool Installation

Figure 3 – Example of ducting -
This installation example uses flexible utility duct to redirect existing ducts

Figure 4 – Shuttering in place

Figure 5 – Showing ducting routes and back fill

Figure 6 – Checking door opening for finished surface

3.2 Installation of a Plus+ Sealed Cabinet Base

1. Remove the sealed base plate from the stool
2. Run a bead of silicone, 996/4/22026/100, all around the top rim of the stool ensuring no gaps are left.
3. Fit the base plate in the orientation shown below. ***Note – Studs facing upwards, and sealed blocks to the rear right hand side of the cabinet,*** *Figure 7*.
4. Run a bead of silicone all around the top rim of the stool ensuring no gaps are left.
5. Remove the stool door.
6. Fit the controller cabinet to the stool. ***Note – The door should be the same side as the stool door***
7. Using the Nuts and bolts supplied with the stool bolt the cabinet to the stool and tighten. Ensure the silicone has sealed all around and wipe off any excess

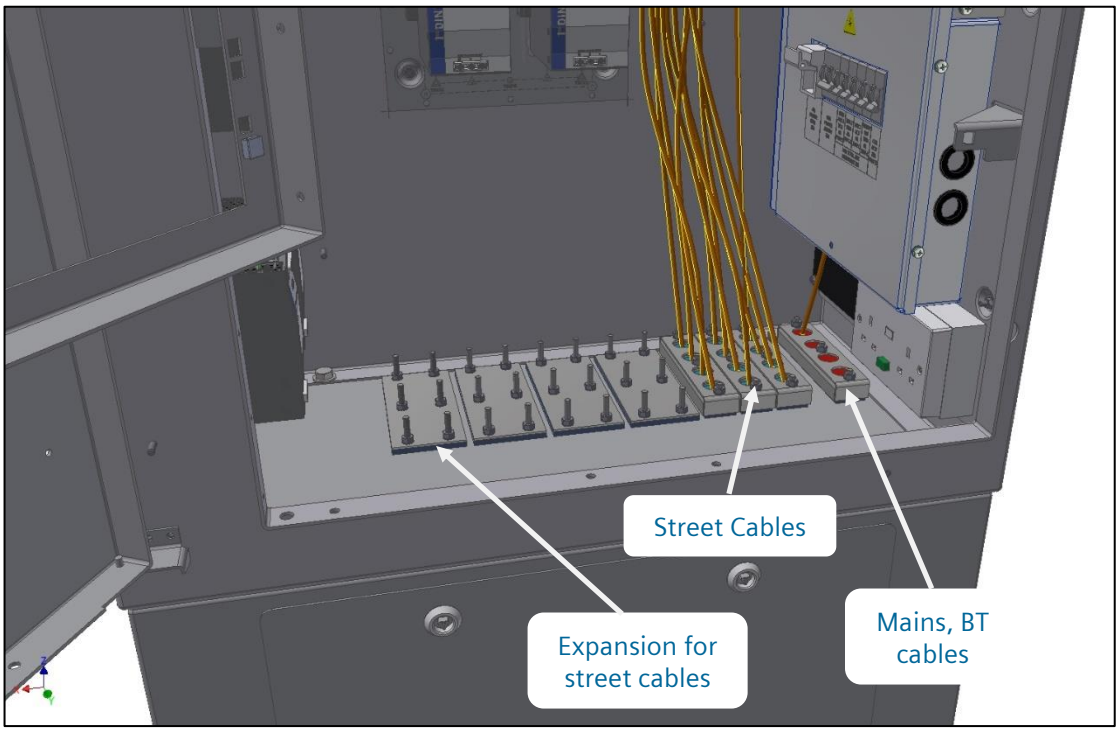

Figure 7 – Plus+ Sealed Cabinet Base

3.3 Bringing street cables into the cabinet (earthing and sealing cables).

The components on the Sealed Base Kit are described in Figure 8.

1. Loosen nuts on the top clamps.
2. Remove top clamp.
3. Remove base plug from the base seal block.
4. Remove the stool door.
5. Feed cable up into cabinet through the base plate and compression seal.
6. If cable is loose in the compression seal then select a suitable shim for the cable diameter. ***Note – Shims available are 667/2/53033/000 – 9mm, 667/2/53033/001 – 12mm, 667/2/53033/002 - 15mm.***
7. Check length of cable required to reach its termination point.
8. Ensuring that the cable length is suitable for termination, cut through cable and armouring with a suitable tool.
9. The armouring must fan out to 90 degree's with a 30mm diameter to be clamped properly. See Figure 8. Strip back outer sheath of cable exposing the correct length of armouring to be bent down to achieve this.
10. Check the inner cable cores are able to pass through the holes in the top clamp. If the holes are too small then replace the top clamp with the larger 22mm diameter option (667/2/53017/001).
11. Using pliers bend armouring out to 90 degrees. See Figure 8

Earth Connection

An earth connection is made by sandwiching the cable armouring between the top and bottom clamps. It is important that the clamping force is applied evenly across the clamp plates so please make sure that cable armouring does not overlap between cables.

1. Repeat for the next cable (up to 4 cables per compression seal). ***Note – 1no. compression seal block is provided directly under the master switch panel this for mains, BT etc. In addition, there are another 4 seal blocks provided (16 cable entries for street cables), See Figure 7. If more cable entries are required use the Plus+ cabinet seal expansion kit – Extra 8 Cables - 667/1/53065/008.***
2. Replace the top clamp and nuts.

Grease on studs

There should be some grease on each stud, please make sure it is there. If there is no grease then it is very likely that the nut could cease making in unremovable in the future. If there is no grease then please apply either carbon grease or copper grease to the stud.

3. Tighten down the nuts on the top clamp. Tighten each nut a little at a time so that the force is distributed evenly across the plate. This will minimise any side loads from being applied to the top clamp. Tighten until the bottom clamp touches the base plate.
4. Terminate the cables in the cabinet.
5. Replace the stool door.

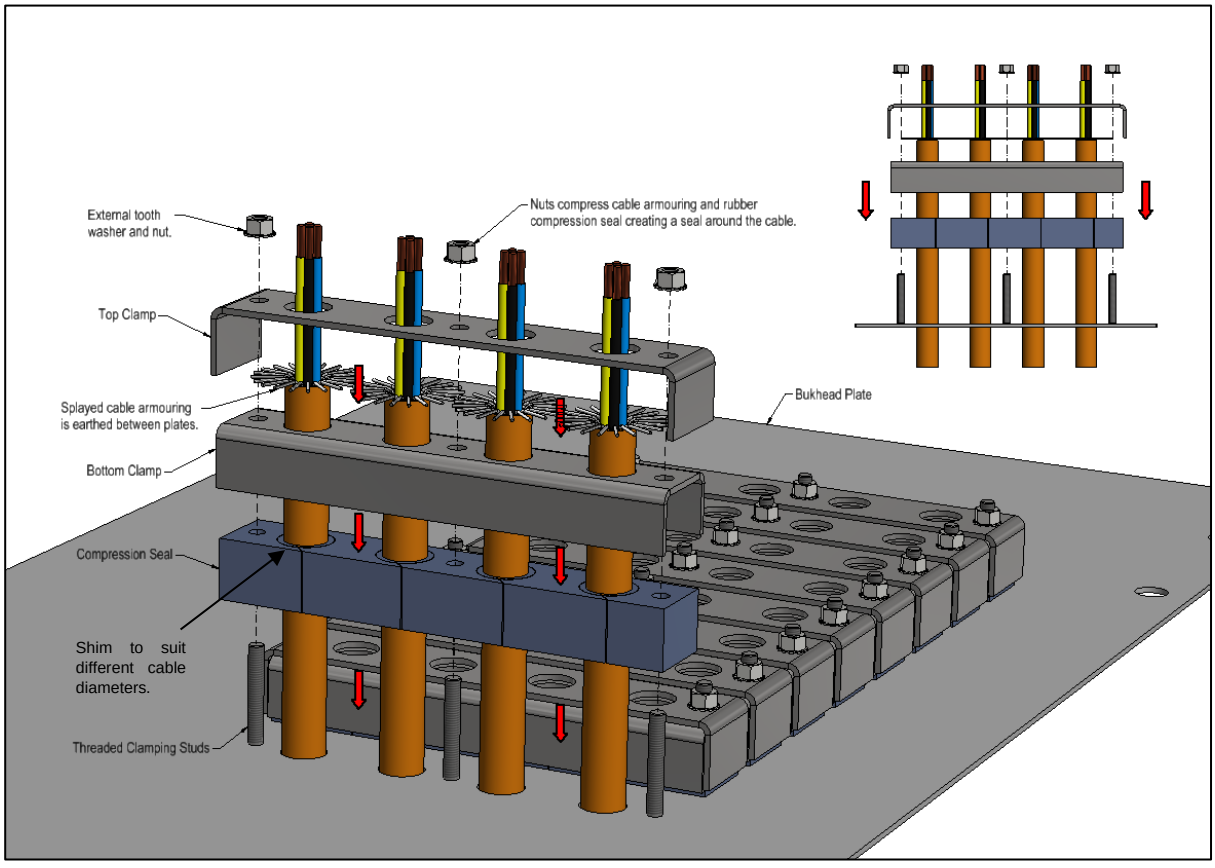

Figure 8 – Plus+ Sealed Base Kit Components and Earthing Mechanism

More information

Siemens Traffic
www.siemens.co.uk/traffic

Siemens Mobility
http://www.mobility.siemens.com/mobility

Siemens Mobility Limited
Sopers Lane
Poole
BH17 7ER
United Kingdom

Order No. 667/CC/53060/000

For more information on Plus+ scan the QR code

www.siemens.co.uk/traffic