



Guardian Security Structures

TEL

1-406-212-2334

EMAIL

rg@gssdoors.com

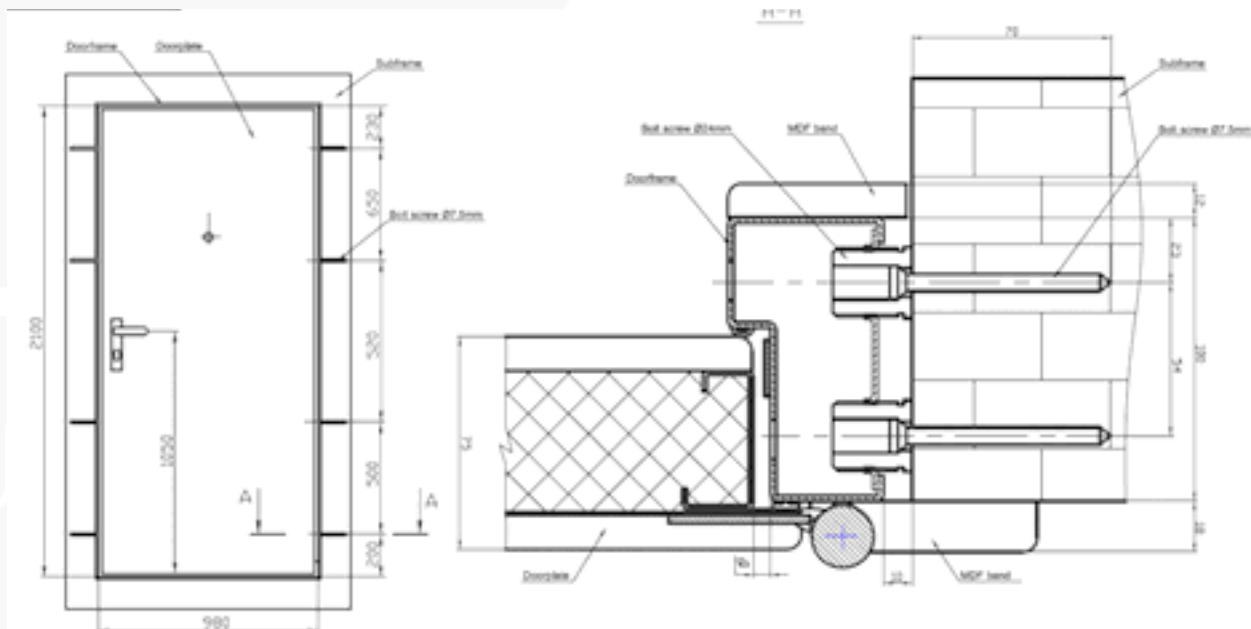
WEB

www.gssdoors.com

INSTALLATION MANUAL

SHIELD SECURITY PREMIUM CLASS

GENERAL INSTALLATION GUIDELINES



1. The door frame is installed using 16 bolt screws 7,5 mm in diameter by 72 mm in length. The distance from the bottom of doorframe - 200 mm, from the top - 230 mm, the step at the middle is not more than 650 mm.

2. The gap between the frame and wall should be 10-20 mm. When the frame is placed in the opening, all 24 mm diameter steel shims are extended out until they touch the wall. If the gap between the frame and the wall is greater than 20mm, it is necessary to assure that the steel liners turned out of the doorframe are propped into the inner side of the opening. The position of the is checked using spirit level and adjusted by turning the bolt screws (if needed)

3. Once the frame vertically installed into the opening with the 24 mm diameter steel shims extended out, holes are drilled through the

shim (6 mm diameter drill bit for installing into wood and concrete openings; 10 mm drill bit for brick or concrete openings when „Elematic“ 50PZ 10x50 bolt screws insert is used). The length of the hole should not be less than 70 mm.

4. The gap between a frame and door leaf should be 6 mm ($\pm 1,5$ mm). The size of the gap can be adjusted by tightening/loosening the steel shims

5. The gap between the frame and wall is filled with insulation and covered with moldings on both sides (exterior molding is 18 mm, interior is 12 mm).

6. When installing the inside opening door, it is necessary to eliminate the cuts of the bolt screw caps supposed for the out-screwing from outside.

7. After the frame and door leaf are installed, check:

7.1 The operation of the lock (does the dead bolt and the latch go into the frame without difficulties)

7.2 The gaps between the door-leaf and the door frame (6mm $\pm 1,5$ mm)

7.3 The door seals (the insulation seal of the door-lead must touch the door leaf tightly).



TROUBLESHOOTING

MOST COMMON MISTAKES

TROUBLESHOOTING - MOST COMMON MISTAKES

- Shims should not be too tight against the wall. They should be snug, but not tight. The shims are not designed to secure the frame to the wall but rather to protect the screws from being cut. The most common installation mistake is tightening the shims too much as this will bend the frame. Loosening them is also the most common solution to alignment problems.
- Screws should not be too tight as this can also distort the frame and cause bolt alignment problems and gaps between the door leaf and frame.
- Do not try to align the frame with the wall. Often, walls are not perfectly straight. This means that in some places, you may have to extend the steel shims further out than in other places. Always trust that the frame is straight, not the wall.
- Always start frame installation on the hinge side. Do not secure the lock side of the frame to the wall until the end as this will allow you to adjust the frame during the bolt alignment process.
- If the hinge side frame installation is done correctly, you should not have any issues with the lock side installation or with bolt alignment.
- The door leaf and frame will settle slightly over time. In order to mitigate this, once installation is complete you can raise the door approx. 1mm using the adjustable hinges. Measure this based on dead center bolt alignment in their slots. This will help to ensure the door remains in alignment over time

IMPORTANT NOTE

Do not try to align the frame with the wall. Very frequently, walls are not perfectly straight. When the frame is installed in line with a leaning wall they look good but they malfunction (i.e. the door-leaf will swing open or shut).

STEP 1

Lay the frame on it's side and drill the MDF logs onto the transverse plates under the threshold. There should be three in total (two at the edges and one in the center). The MDF should be 12-18mm thick. The holes for the wood-screws are drilled.

**STEP 2**

Use woodscrews to secure the MDF to the threshold.

**STEP 3**

The MDF is secured in three places: at the edges and in the middle.



STEP 4

After securing the 3 MDF logs, place the frame in the opening and check to make sure the floor is level by placing the level flat along the threshold. If it is not, trim the wooden logs you just installed under the threshold until it is level.

**STEP 5**

Check the hinge side of the frame to ensure that it is vertically straight and not tilting forward of back.



STEP 6

The 12mm hex key is used to extend out the steel shims.

**STEP 7**

Once the floor/threshold is level, start securing the frame to the wall by turning out the hinge side shims only on the thicker part of the jamb that juts out. Remember not to tighten them too much as this will cause bending in the frame. They should be snug. Do them in the following order:

1. Top shim
2. Bottom shim

Middle shims are not turned out at this point.

**STEP 8**

The shims should touch and be snug against the wall. The gap between the frame and the wall should be 10-20mm.

If the doors are fireproof the gap must not exceed 10mm.



STEP 9

Check the vertical position of the wall using the spirit level.

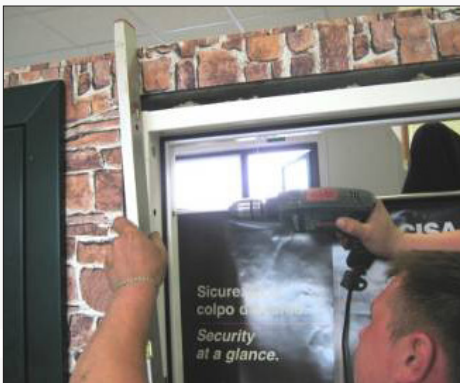
**STEP 10**

If the wall is not vertical check, if the frame comes out from the wall.

**STEP 11**

If the base is not even or the frame needs to be slightly elevated slide additional MDF logs under the existing ones beneath the threshold.



**STEP 12**

Securing the door frame must always start on the hinge side, on the thicker part of the jam. The holes are drilled into the wall through the steel shims. The frame must be held in place to prevent it from moving and losing its vertical position while drilling.

**STEP 13**

If installing the frame into a wooden opening, use a 6mm drill bit and the 6mm wood screws that are provided.

If installing the frame into a strong concrete opening, use a 6.5mm drill bit and the 6mm concrete screws provided.

STEP 14

If installing the frame into a weak concrete opening, use a 10mm drill bit, plastic anchors, and the concrete screws provided.

The length of the hole in the wall should not be less than 70 mm.

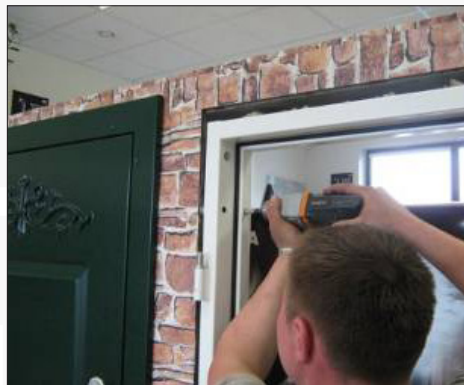
**STEP 15**

Insert and tighten the screws through the top and bottom shims.



STEP 16

Use an electric tool to tighten the screws.

**STEP 17**

Extend out the remaining shims on the thicker part of the hinge side jamb. (Snuggly touching the wall, but not tight.)

**STEP 18**

Again, check the vertical position of the frame.

STEP 19

The remaining holes are drilled through the shims on the thicker part of the jamb.



STEP 20

Insert and secure the screws through the newly extended shims on the thicker part of the jamb.

Once completed, check with a level to insure that it's straight. If it isn't, tighten or loosen the shims to compensate and check again with the level. If it still isn't straight, slightly loosen some of the screws. What's happening is that the frame is bending slightly because the tension is not uniform throughout.

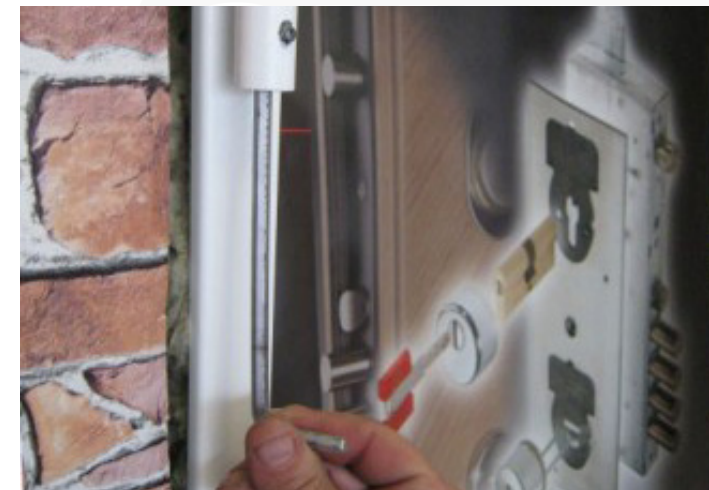
Next, move on the thinner part of the hinge side jam and repeat: top, bottom, and middle in the same order. Once completed, check with the level to ensure the frame is straight and not bending.

**STEP 21**

If the hinges are adjustable (Shield Premium and Standard 3 models) unscrew the set screws on the hinges Using a 3mm hex key.

**STEP 22**

Raise the adjustable hinges approximately 1,5 mm using a 6 mm hex key.



**STEP 23**

Clean the hinges of any dust.

Lubricate the hinges and the bearings with the lubrication provided.

STEP 24

Place the door leaf on the frame with the "Made in Italy" side up on the hinges.





STEP 25

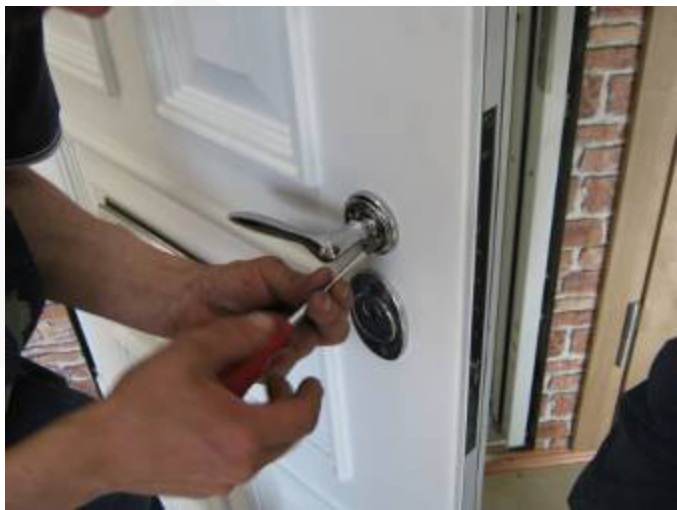
Check the movement of the door leaf on the hinges.

The gap between the frame and door leaf should be 6 mm ($\pm 1,5$ mm).

STEP 26

Install the handles (if necessary).



**STEP 27**

Tighten the fastening screws on the handle trim. If the screws are too long, cut them.

**STEP 28**

Start extending the steel shims on the lock side of the frame beginning with the thicker part of the jamb.

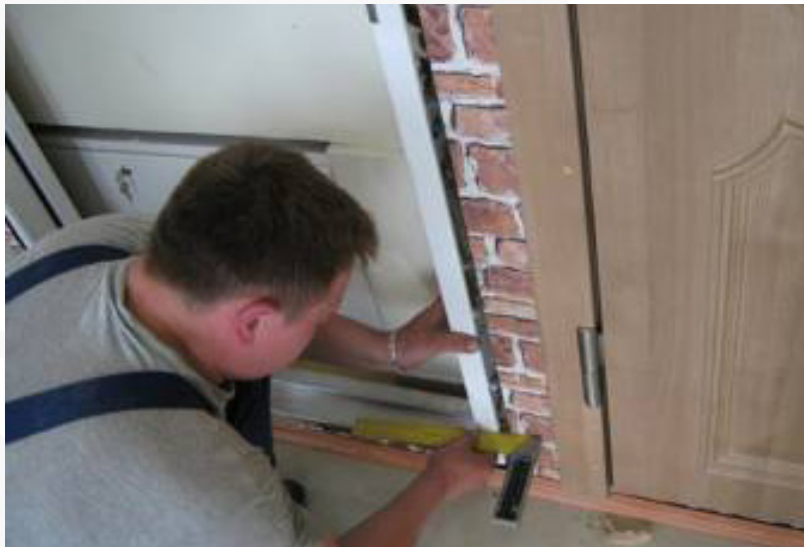
STEP 29

For Premium class doors only: the shim and screw located in the threshold should only be secured at the very end.. They are very useful for correcting bolt alignment so do not secure this point until the very end.



STEP 30

Check that the frame does not protrude out of the wall.

**STEP 31**

Check the vertical position of the frame using a level.

**STEP 32**

Adjust the hinges

**STEP 33**

With the door completely open, insert the key into the cylinder and turn the key to lock and unlock. This is to ensure the lock is operating smoothly. Next, with the bolts retracted (i.e. door in unlocked position) close the door 90% of the way like pictured to check that the hinge side studs are easily entering the slots in the frame. Do not close the door all the way. If the studs are too low or high, adjust the hinges as necessary.



**STEP 34**

Once the hinges are properly adjusted, tighten the set screws on the hinges.

**STEP 35**

With the door completely open, turn the key 720 degrees to fully extend the locking bolts. Gently push the door against the frame. With a pencil, make a mark on the frame where the middle bolt of the main lock hits the plate.





STEP 36

Open the door and with a straight edge, check to make sure that the pencil mark you just made (which represents the center of the bolt) aligns with the center (or 1-2mm higher) of the corresponding slot in the frame. Note: Center bolt position can be 1-2mm higher than the center of the slot because over time, the door will settle 1-2mm on the hinges. But the bolt alignment cannot be below dead center at the time of installation.

STEP 37

If the bolts are not properly aligning, add a small MDF log under the threshold at the lock side in order to raise it slightly.

You can also try to tap the top of the frame on the lock side to slightly adjust it upwards. Repeat alignment test with pencil to check if adjustment is adequate.

Note: If you have already secured the lock side shims and screws, it will be impossible to make this easy correction for bolt alignment.



**STEP 38**

Again, check if the center of the bolt aligns with the center of the hole (or +1-2mm).

STEP 39

Only once the lock side of the frame is straight, secure the shims on the thicker side of the jam in the following order:

1. Bottom shim
2. Top shim
3. Check lock side with level to ensure frame remains straight
4. Drill bottom screw then top screw
5. Check lock side with level to ensure frame remains straight
6. Close door to check bolt alignment
7. Secure middle shims and screws
8. Check lock side with level to ensure frame remains straight
9. Close door to check bolt alignment

Once bolt alignment is correct, open the door and use the level to ensure the lock side of the frame is straight. If it is not straight, tap with your hand to correct.

**STEP 40**

Repeat procedure for shims and screws on thin side of jam.

STEP 41

Once all the screws are secured, check:

- 1) If the door can be easily opened and shut.
- 2) If the handle can be easily operated.
- 3) Can the lock and other devices such as invisible chain be easily locked and unlocked both when the door is open and shut.



STEP 42

Close the door to measure the gap between the door edge and frame on the lock side. It should be approx. 2mm (0.08"). If the gap is too wide (more than 2mm), it's because the shims are too tight and are bending the frame. This will also cause you to lose sound and weather insulation. To correct, slightly loosen the shims on the lock side. If the gap is too narrow (less than 2mm), loosen the two middle shims and drill through them with the screws. This will create a 2mm gap between the frame and edge of the door. If it is too wide at this point, slightly loosen the screws and tighten the steel liners. Note: if the hinge side is installed properly, you should not encounter any difficulties here.

STEP 43

Without turning the key and locking, close the door to ensure that it is flush on all sides and seals are making contact. If they are not, bend/push the door leaf slightly to correct.

If bolt position is slightly off, now use adjustable hinges to raise/lower door.

**STEP 44**

Put the hinge covers on.

STEP 45

Crimp the bottom hinge cover to keep it in place.



**STEP 46**

Fill the gap between the door frame and the wall with sealing foam.

If the doors are fire resistant, use a certified fire resistant foam.

For bullet resistant doors the gap between the door frame and the wall should be filled with concrete.

**STEP 47**

The gap between the wall and the door frame can be also filled with rockwool. In this case the channel in the door frame must already be filled with rockwool (prior to installation). Note: all doors come factory delivered with rockwool in the frame channel.

Cut the bars of right width.

STEP 48

Seal the gap between the door frame and the wall all over the frame.



SHIELD
SECURITY DOORS

STEP 49

Once the gap between the door frame and wall is filled, the trim is installed.

First, the hinge side trim is installed.

**STEP 50**

The external side trim can be screwed on or glued to the frame.

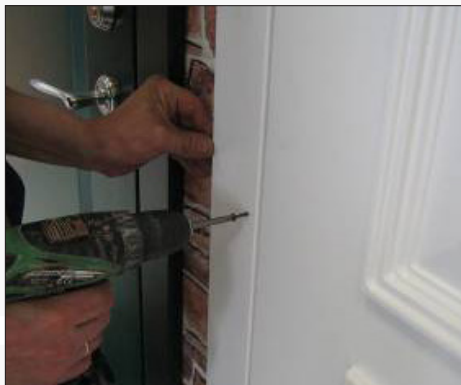
If the trim is screwed to the frame, drill the pre-marked holes. They are pre-aligned with holes in the frame.

- Hold the hinge side trim and top trim to ensure they are flush with the frame, straight, and aligned.
- Always start with the hinge side. Drill through the pre-tapped holes and secure to the frame.

If you are gluing the trim, look at the instructions on inside architraves.

The gap between the trim and the door leaf panel has to be ~ 3 mm.



**STEP 51**

Screw the trim to the frame through the drilled holes.

**STEP 52**

Once the hinge side trim is secured, install the upper trim.

STEP 53

Drill the holes.

**STEP 54**

Screw the trim to the frame through the drilled holes.

**STEP 55**

Install the lock side trim in the same way.





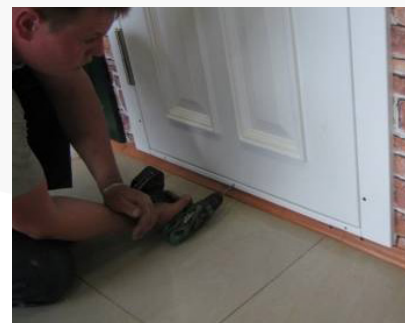
STEP 57
Measure the required height for the lower trim and cut accordingly.



STEP 58
Check to ensure that it fits before securing it.



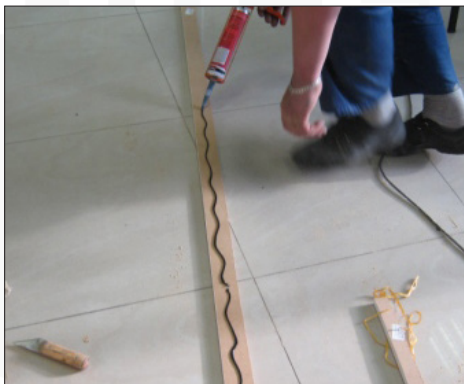
STEP 59
The trim is screwed to the wooden logs under the threshold.



**STEP 60**

Internal side trim can be screwed on (as shown above) or glued to the frame.

Use liquid stud type glue.

**STEP 61**

Put the glue on the trim.

**STEP 62**

Press the trim firmly to the door frame.



STEP 63

Repeat with the other pieces of trim.

**STEP 65**

If the doors are fireproof, the fireproof seal is glued on the frame.

Be sure to clean the frame of dust and grease before applying the fireproof seal.

**STEP 64**

The position of the trim must be adjusted before the glue dries.



**STEP 66**

Cut the seal at the corners of the door frame. If the seals are not cut and bend in the corners, the door will not achieve its full fire resistance capability.

**STEP 67**

If the threshold is "L" shaped (for Premium class and Standard 3 class doors), the insulation seal will be glued on.

First, measure the insulation seal on the threshold.

STEP 68

Glue the insulation on to the threshold.

SHIELD
SECURITY DOORS

STEP 69

When the insulation seal is glued, check the tightness of the door. The seal of the door leaf must touch tightly the door frame to the entire perimeter.



STEP 70
INSTALLATION IS COMPLETE





Guardian Security Structures

TEL

1-406-212-2334

EMAIL

rg@gssdoors.com

WEB

www.gssdoors.com