

Solus Handcast Concrete Fireplace Surrounds Installation Guidelines



CAUTION: FRAGILE!

Concrete is very strong but brittle. Extreme care must be taken when handling pieces as edges and corners will chip easily if they collide with other hard objects such as metal, stone, or most importantly, each other.

Chips in concrete are not easily repaired!

This installation manual is only a set of guidelines. In no way does it attempt to cover every situation and variable that may exist on a particular installation site. Solus Decor Inc is in no way responsible or liable for any installation of Solus products, for improper use or interpretation of this guide, nor for any outcomes resulting from the use of the tools and methods described herein. This manual is not a substitute for the experience of a qualified installer (tile setters and masons may have worked with similar materials) and it is our strong recommendation that one be employed for the installation of any of our products.

GENERAL PRECAUTIONS

Solus Fireplaces are cast in high-performance concrete. While this material exhibits exceptional strength, it has a fine finished surface which can be damaged if these and the other guidelines in this manual are not followed:

Do not leave concrete wet -

If concrete should become wet for any reason (including wet cutting and/or grouting), dry surface water immediately, and ensure that pieces are placed so that finished surfaces can air dry.

Do not leave tape on the surface -

Many masking tape adhesives are mildly acidic and should not be left stuck to concrete for more than an hour. Acids tend to have a bleaching/etching effect on the concrete's colour

It's only as strong as what you adhere it to -

Movement in unstable substrates may result in cracking. It is advisable to use flexible adhesives when adhering panels to such surfaces as new concrete or metals.

Handle With Care -

Solus Concrete is most susceptible to scratching, chipping, and staining during installation.

When in doubt about how to treat the material, always err to the side of caution and do not hesitate to call us if you have any questions: 604-255-2472 or Toll-free 1-877-255-3146

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This installation guide is designed to cover all of our fireplace models in a wide variety of situations. Your fireplace will include one or more of the following components: hearth, surround, mantel, and inset panels. The guide is divided into sections that treat each component separately so you can use and ignore sections as is appropriate.

Solus fireplaces are designed to be installed on flat flush surfaces. For 'built-out' or cabinet situations, you may require special parts and instructions. Please contact us for information.

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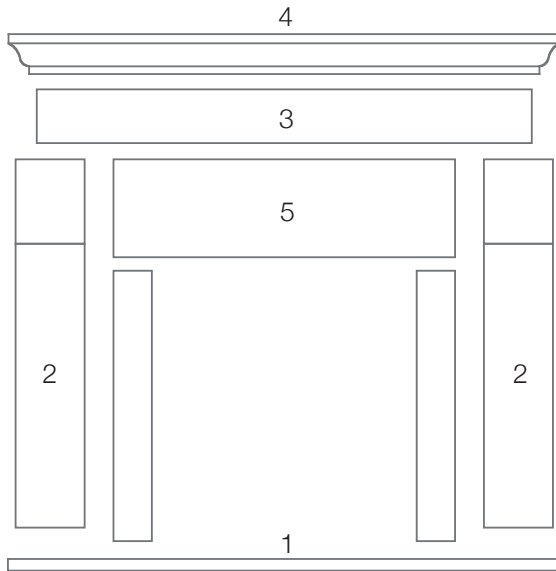


Figure 1 - Fireplace Components

1. YOUR FIREPLACE

Your fireplace will be comprised of some or all of the following components. For the purposes of this manual, we will refer to the components of the fireplace as follows:

1. Hearth
2. Legs
3. Header
4. Mantel
5. Trim Panels

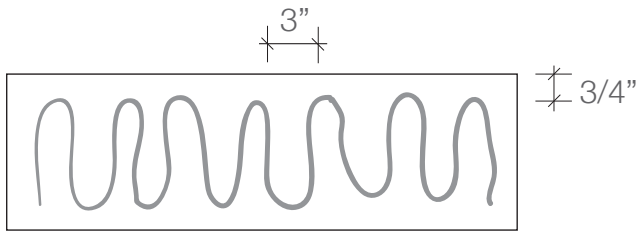
TOOLS AND MATERIALS

You will need

- Level - 2' minimum
- Framer's square
- Hammer
- Wood shims up to 1/4"
- Caulking gun
- Screw gun or screwdriver
- Tape measure
- Utility knife
- Painter's tape
- Moving blankets or blocks of Styrofoam
- 1 1/2" - 2" #8 or #10 wood screws (1/8")

A Note About Adhesives

In this guide, we recommend the use of PL Premium Construction Adhesive which is an extremely strong, flexible glue suitable for this application. Its advantages are: ease of use and ready availability. It also requires very little experience or knowledge to use effectively. Its disadvantages are slow drying time and its tendency to 'lubricate' surfaces to be adhered. We recommend applying adhesive within the following parameters:



If you are comfortable using thinset mortar, we recommend that you use it for its advantages. We do however recommend the use of acrylic additive, like Mapei's Kerabond/Keralastic system, suitable for wall applications.

Where thermal expansion is an issue, Mapei Planicrete W may be used - particularly to adhere concrete directly to metal.

You may need

Thinset Adhesive mortar with acrylic additive:

We recommend Mapei Kerabond/Keralastic system

3/8" notched trowel

Mapei Keracaulk S sanded caulking

PL Premium Construction Adhesive

Saw horses

For Finishing and Sealing

Green buffing pad

Penetrating Sealer

BASICS

Properties of Concrete

Concrete is very strong but brittle on edges and corners. The most common source of a damaged surround is pieces that are knocked into each other. Damaged concrete is difficult to repair!

Your fireplace surround is unsealed. Preseal with sealer provided before you begin. Until your fireplace is fully installed, clean, and given a final coat of sealer, it is susceptible to staining. Please ensure that hands and tools are clean, and that spills and excess adhesive, grout or dirt are cleaned up promptly.

Every fireplace or modern gas insert has different requirements for flammable material minimum clearances. Furthermore, every region has different building codes with regards to flammability issues. Although concrete is non-flammable, the substrate that you will be installing to may be flammable. It is your responsibility to familiarize yourself with these requirements and make the necessary adjustments to your particular installation.

2. PREPARATORY WORK

With all applications you should adhere to the following simple rules:

- Your substrate must be sound and should be solidly attached to your home's structure: concrete board, brick, concrete, and block are good substrates; drywall is not.
- Modern adhesives are extremely strong, but should always be backed up with mechanical bonds, and are only as strong as the substrate that they are affixed to.
- Your installation is only as strong as its weakest bond.
- When in doubt, overbuild and oversecure.
- Always double-check dimensions, concrete cannot be repaired adequately and it is very difficult to cut 1/4" or less off of a piece if an error is made.

A Common Installation Scenario

The following describes one common situation in general terms and how it can be made to fulfill prep requirements.

A Gas Fireplace is installed in a stud wall with the intention of having drywall facing around the surround. The best preparation for a Solus Concrete surround is to install 1/2" cement board (Wonder Board or Durock) over the entire 'footprint' of the future surround keeping back 1/2" – 3/4" from the edges. The face of the concrete board should be flush with the face of the surrounding drywall and it should be anchored according to manufacturer specifications. Framing should be no more than 16" on centre (12" is recommended) in this area and should overlap the drywall/concrete board joins. See Figure 2.

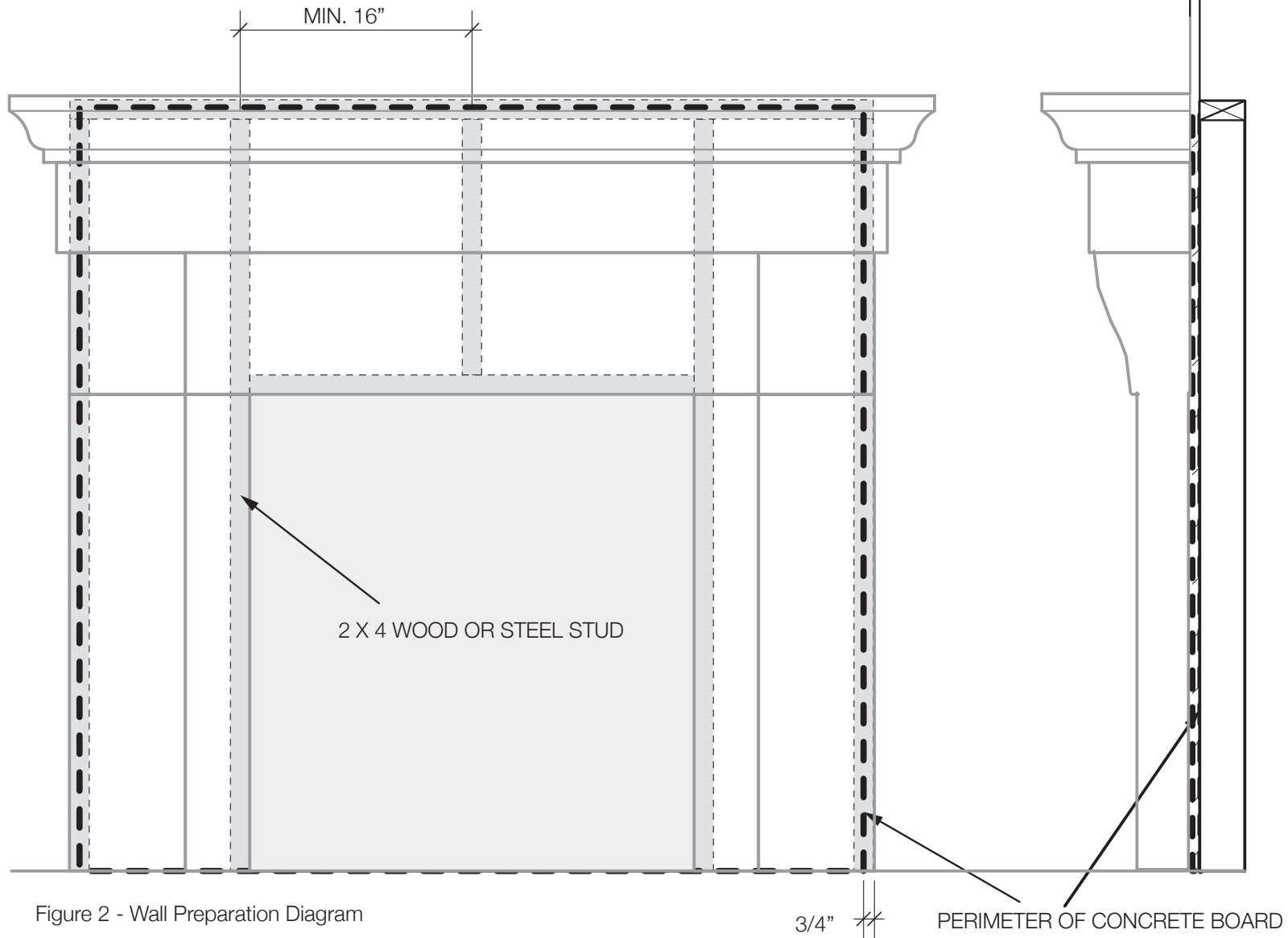


Figure 2 - Wall Preparation Diagram

CAUTION:

Damage most commonly occurs during unpacking. Be careful to not bang pieces into one another.

Pre-install

Mark out (in pencil or painter's tape) the perimeter of your future fireplace surround on the wall in its correct location. Ensure that the substrate in this area is sound and ready.

Find an open indoor space, free from traffic, where all fireplace pieces can be laid out. Carefully unpack crate and lay pieces out on a soft surface such as a moving blanket or Styrofoam (this will ensure that pieces do not chip or damage your flooring.) Arrange pieces roughly in the order that they will be installed and familiarize yourself with all the components of your fireplace surround. Double check dimensions with those marked out on your wall.

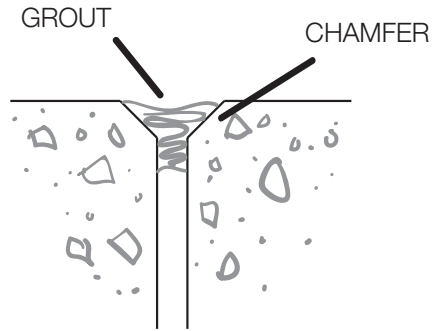
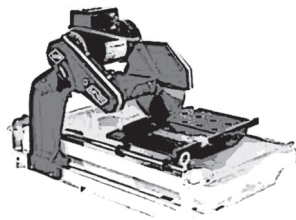
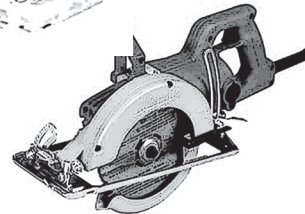


Figure 3 - Chamfer Diagram



Tile Saw



Worm Drive Saw

CAUTION:

If you are cutting wet, dry and clean off pieces immediately after cutting to avoid water marks. Do not leave pieces wet!

3. CUTTING CONCRETE

It may be necessary to cut components of your fireplace.

When you cut concrete, you will expose the interior of the concrete: the sand and aggregate. It will appear much more gray and non-uniform. You must plan your cuts so that they are hidden in the grout joints.

Further, when you cut, you will create a hard 90 degree edge that will be extremely brittle. We highly recommend putting a small (1/8" or less) chamfer into the cut edge with a sanding disk. This will protect the freshly cut edge from chipping, hide any spalling that took place during cutting, and create an attractive chamfer that will hold grout. See Fig.3.

Methods for Cutting

The preferred and easiest method for cutting fireplace components is done with a stone panel-cutting saw, tile, or brick saw equipped with a diamond blade of adequate size for your particular needs.

Cuts can also be made successfully using a circular saw with a wet or dry-cut diamond blade. If this is the method you choose, we recommend applying a protective layer of tape to the saw guide where it will contact the concrete. Support the entire length of the piece with a sheet of styrofoam, and clamp a straight-edge to the to guide the saw. Caution: Thin panels may not be perfectly flat. Do not apply downward pressure on the piece, simply allow the saw to glide along the surface. Use particular care as your saw blade exits the piece as there is a tendency for the piece to crack or chip at the exit point.

Please follow saw manufacturer's instructions and use appropriate eye, ear, and dust protection gear.

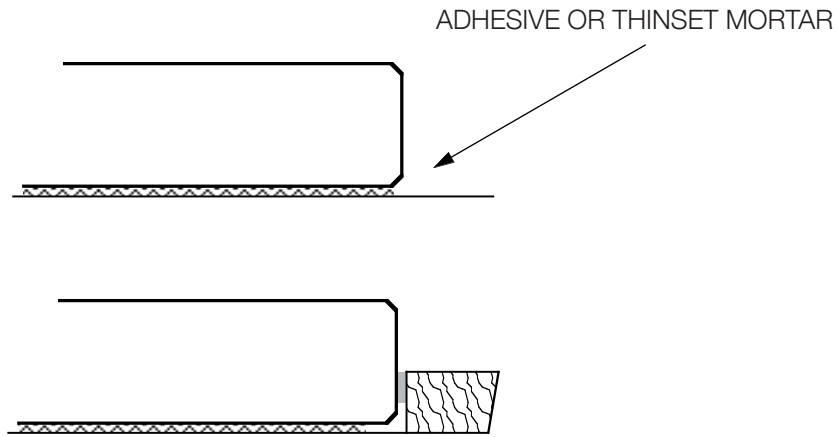


Figure 4A - Slab or Sitting Hearths set above or into typical flooring

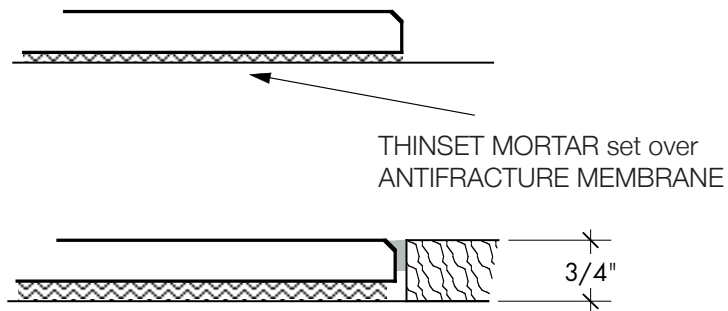


Figure 4B - Tile Hearth set above or into typical flooring

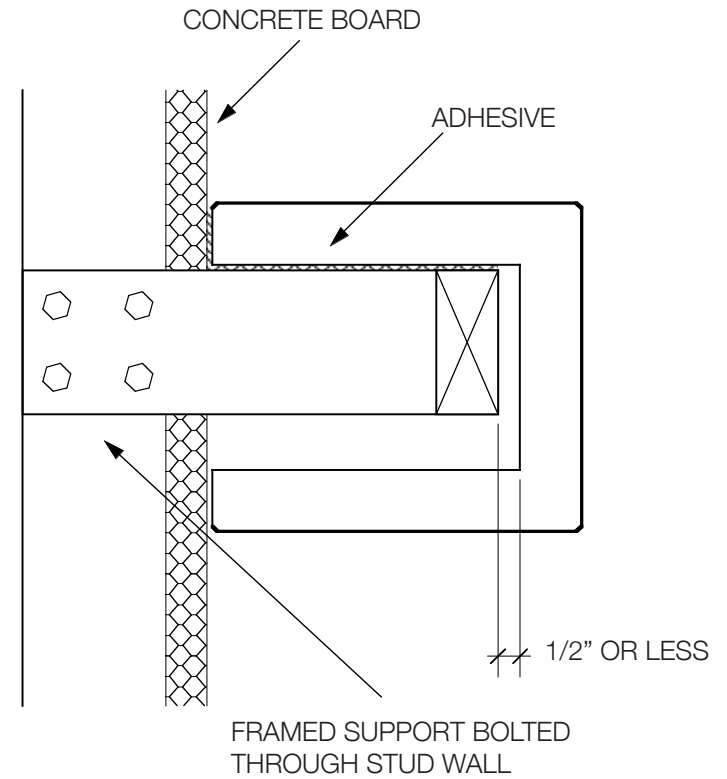


Figure 4C - Floating Hearth Installation

TYPICAL HEARTH APPLICATIONS

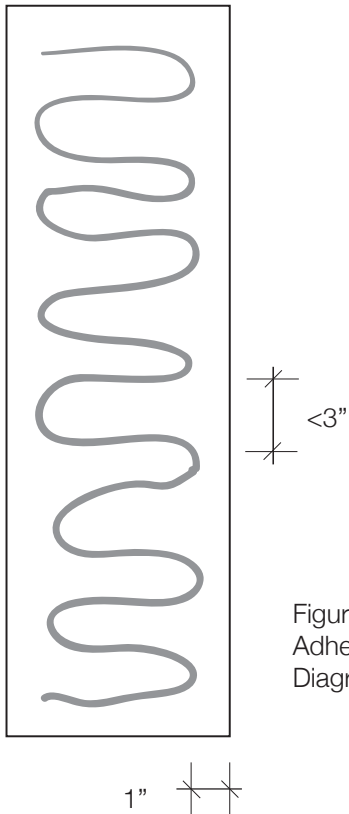


Figure 5 -
Adhesive
Diagram

3. HEARTH

Slab or Sitting Hearth

These hearths may be set onto finished flooring or subfloor.

Your slab hearth is cast to size and should need no cutting. Measure out hearth and mark out its location on the floor. Check floor level and note if leveling or shimming is necessary. If the floor slopes heavily, it may not be possible to level the hearth completely and you may opt to set the hearth slightly out of level for aesthetic reasons (i.e. if room is out of level). In any case the left-right level is more important aesthetically than the front-back.

Apply adhesive in 1/4" – 3/8" bead at no more than 3" spacing on floor, being sure to keep back 1 1/2" from edges (see Fig. 5) Gently lift hearth slab into place and position. At this point, there will be some play in the slab and you can shim or wiggle the hearth to your desired position.

In order to guarantee that the hearth remains true, it should be allowed to dry overnight. It is possible to proceed directly to the legs, however, if proper care is taken to not disturb the hearth position.

For 'Sitting Hearth' follow the same guidelines as for 'Slab.' Sitting Hearths will usually be cast hollow, creating a more limited adhesion surface.

NOTE:

PL Premium Adhesive can be cleaned up when wet with mineral spirits. It is extremely difficult to remove when it is fully cured.

Tile Hearths

These hearths may be set onto finished flooring or subfloor. See Figure 4B.

Tile hearths are comprised of standard tile sizes at 1/2" thickness. Depending on your application, it may be necessary to cut tiles to fit. Refer to the 'Cutting Concrete' section of this guide.

Tiled hearths must be set using thinset mortar. We recommend only high-quality polymer modified thinset in conjunction with an antifracture membrane. Follow the product directions.

Check the level of the floor prior to installing tile and note areas that may require more or less thinset.

We recommend using a 3/8" -1/2" notched trowel to apply thinset and 'backbuttering' (applying thinset to both surfaces). Tiles should be set, correctly placed and levelled immediately.

Thinset should be allowed to cure as per manufacturer's specifications before installing the rest of the surround.

For more information, please refer to "Solus Handcast Concrete Tile - Installation Notes."



Figure 6 - Using a notched trowel. Angle the trowel at a 45 degree angle to ensure that a full ridge is made with the notches.

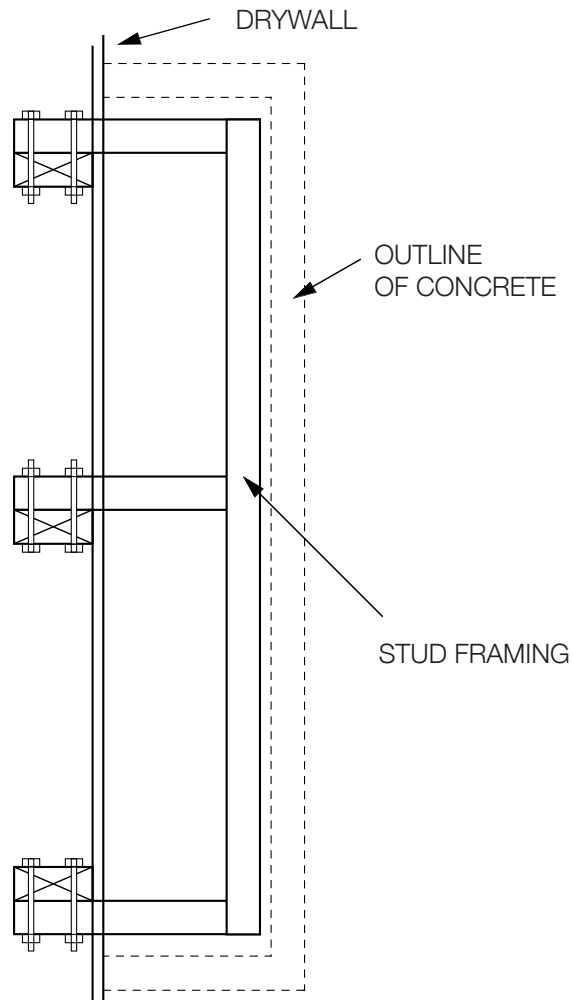


Figure 7 - Floating Hearth Installation - Top View

Floating Hearths

Floating hearths are mounted on the wall above the floor and must support much of the weight of the fireplace surround. The concrete itself will not attach structurally to the wall so a framed supporting box must be constructed. The hearth will then 'cap' this box.

Each floating hearth is cast with a cavity in the back. The exact size of the cavity will depend on the size of the floating hearth that you choose.

We recommend framing horizontally from wall studs to within 1/2" of the inside of the cavity. The frame should be bolted to wall studs and should be able to support the weight of two adults with no deflection.

If you are using steel stud, double up studs and use heavy gauge steel stud.

See Figures 4C and Figure 7.

Construction adhesive can then be used to attach the hearth to the frame.

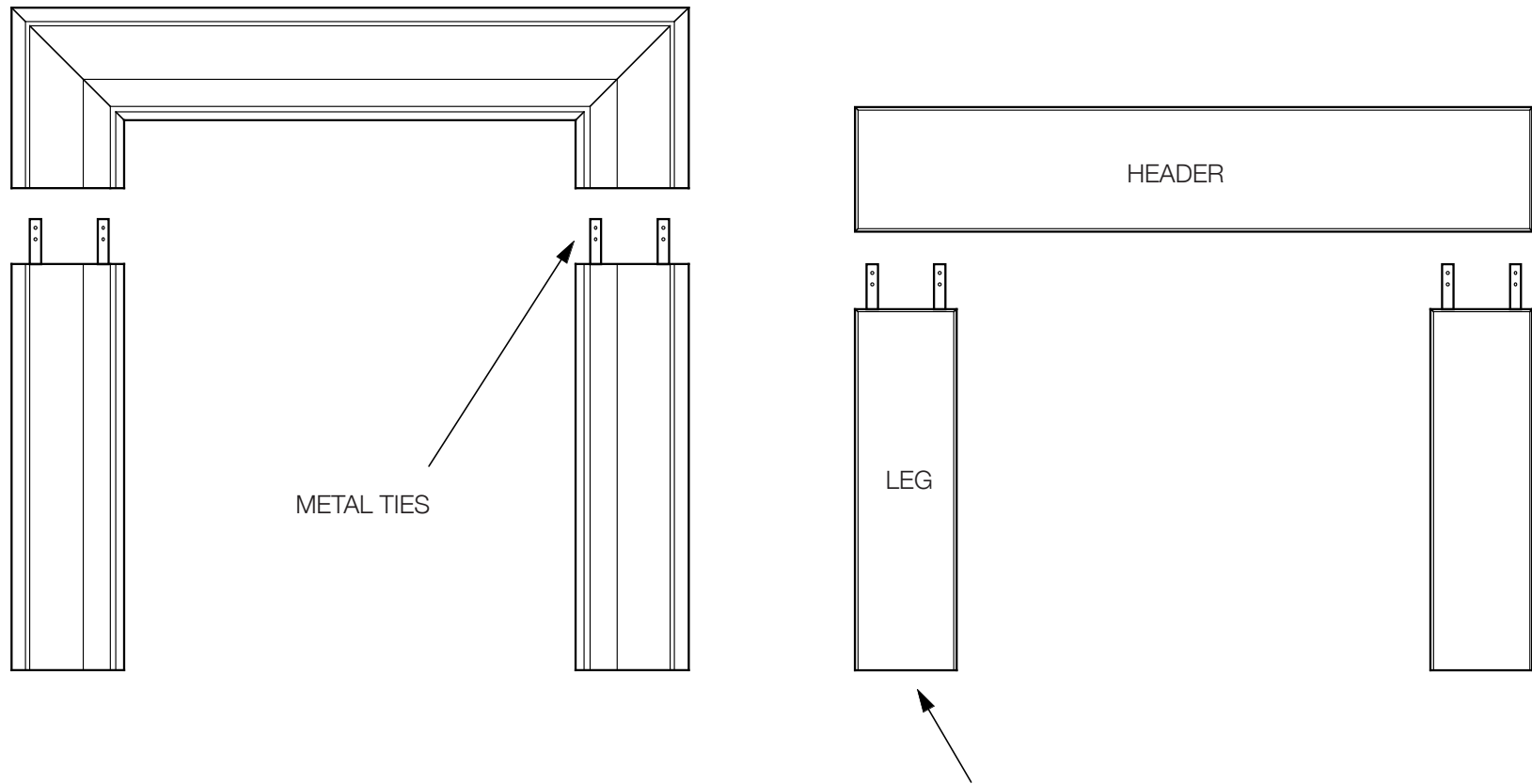


Figure 8 - Typical Three-Piece Surrounds

LEGS CAN BE CUT TO LENGTH FROM BOTTOMS

SURROUNDS

4. SURROUND

Three-Piece Surrounds

Three-piece surrounds are designed at fixed widths. The one-piece header provides for an easy installation and seamless look.

Installing Legs

CAREFULLY lift legs into position on the hearth (When concrete is placed on concrete, the risk of chipping is at its highest). Level legs front-back and left-right and square them to each other and to the hearth. The wall may not be straight, so squaring to it is not recommended. Shim under the legs if necessary (avoid hammering shims in if at all possible – there is a risk of chipping). Double-check the dimensions between the outside of the legs with your header piece (These dimensions must match exactly!)

When you are sure that legs are located correctly, screw them into the wall via the brick ties. Mark out the bases of the legs on the hearth or floor with tape, and scribe the inside line of the legs on the wall. It is also a good idea to secure shims in place with tape. Then, remove screws and remove legs.

Apply adhesive to the wall in leg location, carefully place legs in position and replace screws.

It is important to proceed directly to the header before the adhesive dries, so that any adjustments that need to be made can be done while there is still play in the legs.

CAUTION:
Never allow installed legs to dry overnight before placing the header. You may risk setting the legs out of alignment.

Dry fitting and Installing Header

Your one—piece header, or assembled three-piece header may be installed in the following fashion:

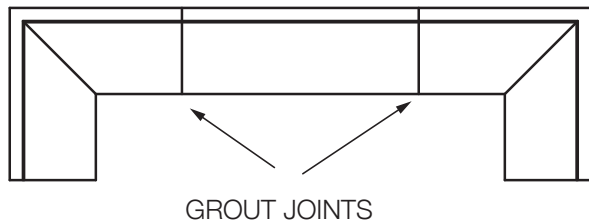
TIP:

We recommend that you place your 1/16" to 1/8" shims on top of the legs prior to placing the header. This will help to protect the pieces from chipping and allow for your final grout joints.

Carefully lift and place the header on top of the legs, lowering gently. Using an intermediary stage, like a couple of saw horses, can be helpful here. Once the header's weight is supported by the legs, gently slide it into position and firmly against the wall. Align the legs, one-at-a-time, and ensure that all pieces come into proper alignment. If they don't align, you may have to remove the header and reposition one or both of the legs.

After all pieces are perfectly aligned, scribe the underside and top of the header on the wall in pencil. Then, carefully lift the header off and place it back onto the floor or saw horses. Apply adhesive to the wall and tops of legs, again, keeping 1" away from edges. Lift and place the header and position it correctly. It may be necessary to shim under the front of the header, where it meets the legs.

If your fireplace surround has a mantel, the header may have metal ties to fasten it to the wall. If this is the case, they may be screwed in at this time.



Five-piece Surrounds

Five-piece surrounds are distinguished by their three-piece header. This allows for maximum dimensional versatility.

If you have chosen a surround with a three-piece header, it is likely that you will need to cut the centre section to length. If this is the case, measure and cut as described in Section 3.

NOTE: It is important when measuring to allow for grout lines if desired. We recommend a minimum of 1/8" to allow for adequate grout adhesion. It is possible, however, to fit pieces tight.

Our recommended method for installation of the header is to preassemble and glue the three pieces together prior to installation. This is done by placing the three pieces upside-down on a flat surface and applying glue between the pieces.

To ensure a good glue bond, roughen or score the contact surfaces. Additionally, a 2 x 2 piece of lumber or tubular steel should be glued into the channel on the back of the pieces. The pieces should be aligned, double-checked for dimensions and squareness, and then left to dry overnight.

When fully cured, the header can be installed like the Three-Piece Surround.

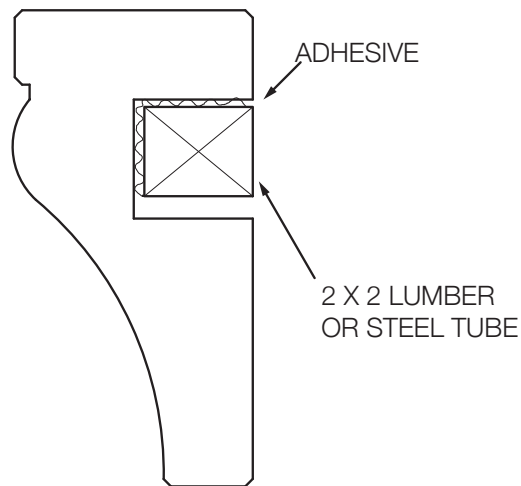


Figure 9 - Three piece header assembly

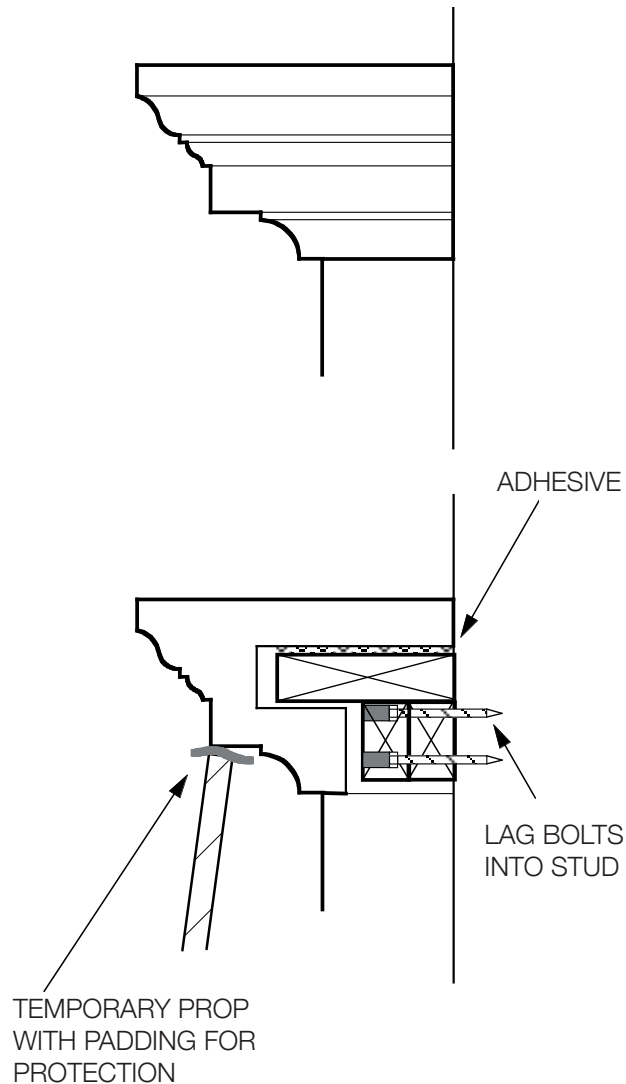


Figure 10 - Mantel Installation

6. MANTEL

Special Consideration for Mantels

Mantels tend to be front-heavy and therefore require adequate adhesion and support. In addition to the usual adhesive bond, you must provide an adhesive bond perpendicular to the tipping angle. This can be achieved by fashioning a lintel out of dimensional lumber that will fit inside the mantel. The larger the horizontal shelf that is created by this lintel, the more secure mantel will be.

See Figure 10.

Dry-fitting and Installing Mantel

Repeat dry-fitting and placing procedure from header section. Again, use shims or cardboard on top of legs or header to protect from chipping. When proper placement has been achieved, remove mantel.

Install the mantel, applying generous adhesive on the wall, lintel shelf and tops of legs or header. It may be necessary to use 2 x 3's as temporary props under the nose of the mantel. (Be careful to protect mantel and hearth or floor with cardboard or foam, where the props meet the concrete).

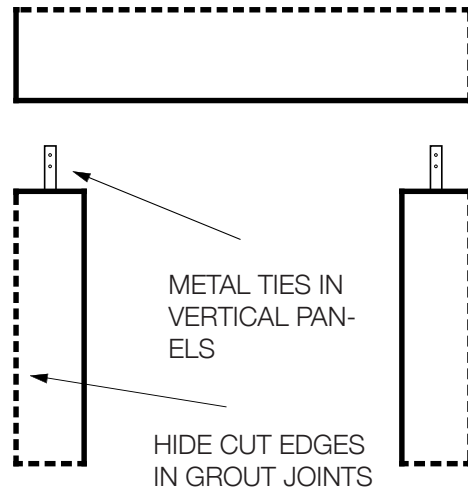


Figure 11 - Typical Trim Panel Configuration

NOTE:

Though dimensioning and squaring is important, ultimately it is 'how it looks' that matters the most. Adjusting pieces slightly, splitting differences, and 'fudging' for aesthetic reasons are perfectly sensible practices.

7. TRIM PANELS

Optional trim panels are available to provide maximum fitting flexibility to your fireplace surround. They consist of 3/4" panels of standard dimensions that may be trimmed to suit your application.

Sizing and Cutting Trim Kit Panels

Determine the desired final opening size for your fireplace. For more information please see "Solus Measure-Up Guide." (page 21)

The location of the fireplace insert or firebox opening will determine whether you require 1,2,3 or 4 panels.

Measure the spaces between the surround and the opening. We recommend allowing a 1/8" tolerance which will become your grout line.

Cut pieces to fit. (Refer to Section 3) Remember that you will need to hide the cut edges in the grout joints.

Dry-fit each piece in its appropriate position being careful not to chip corners. When you are satisfied that all the pieces will fit, apply adhesive to the pieces and place them, starting at the bottom.

You can use the metal ties to fasten the verticals in place. For the other pieces, you can insert a wood screw into each joint to hold each piece until the adhesive is dry.

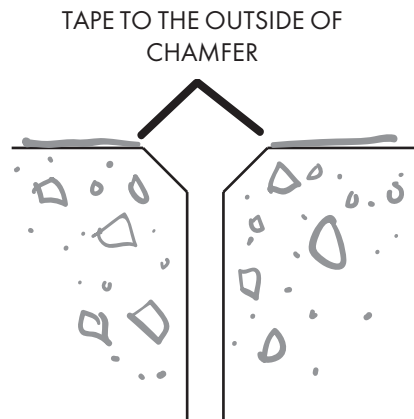


Figure 12 - Taping for Grout

CAUTION:

Despite your best efforts, caulking will continue to ooze out of the tube for several minutes after you have released the trigger. To avoid a mess, be sure to place the gun on a piece of cardboard or newspaper.

8. GROUTING & FINISHING

After adhesive is completely dry (follow manufacturer's guidelines), remove props, screws and shims. If shims are too difficult to remove by hand, it is better to cut them out carefully with a utility knife or Japanese saw than to hammer them out.

Mapei Keracaulk S Sanded Caulking

There are many techniques and systems for grouting and you may wish to employ one of them that you are comfortable with. Solus recommends the following method as an easy and effective option using Mapei's Keracaulk sanded caulking (which may be purchased from Solus):

Use painter's tape to mask around all grout joints to the outside of the chamfer. See Figure 12.

Cut the tip off the caulking tube to expose a 1/8" opening. Working with one grout line at a time, carefully squeeze caulking into joints, overfilling slightly. Then, use a flat wooden shim or plastic putty knife to scrape the joints flush with the outside of the chamfer. It is better to fill the joints flush - as the grout cures, it will shrink back slightly to create a more traditional grout 'reveal.'

Continue with all grout lines in this manner working in small areas and not allowing grout to tack up before scraping. When you are finished, carefully remove tape and allow grout to cure overnight.

DO NOT LEAVE TAPE ON OVERNIGHT - TAPE ADHESIVE MAY MARK CONCRETE!

Finishing

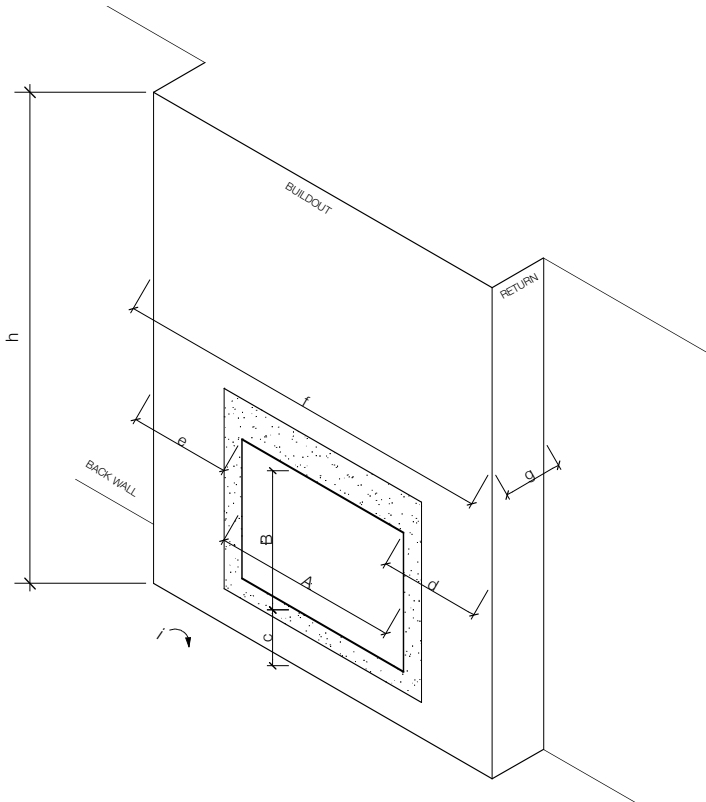
After grout is dry and the fireplace is completely installed, you may find excess dust, watermarks or grout on the surface of the fireplace. These can be easily removed by buffing gently with the green buffing pad (provided in your the Client Care Kit) held in the palm of your hand. It is a good idea to give the whole fireplace a final buffing.

Finally, give your fireplace surround a final seal using the sealer provided. This is a 'penetrating' type sealer that will not coat or affect the appearance of the surround in any way. It will also clean any dust or residue from the fireplace. Follow the directions on the sealer bottle.

When the sealer is dry, step back, admire your work, and enjoy your new Solus Handcast Concrete Fireplace Surround.

Repairs

In the event that your fireplace surround gets chipped during installation, we have provided you with a patch kit. We recommend, however, that you call our office at 1.877.255.3146 for directions and assistance.



- A. ACTUAL OPENING WIDTH _____
- B. ACTUAL OPENING HEIGHT _____
- C. DISTANCE FROM FLOOR _____
- D. RIGHT SIDE CLEARANCE _____
- E. LEFT SIDE CLEARANCE _____
- F. BUILDOUT WIDTH (if applicable) _____
- G. BUILDOUT DEPTH (if applicable) _____
- H. BUILDOUT HEIGHT (if different than ceiling height) _____
- I. FLOORING TYPE _____

Measure-up Guidelines

To measure-up for a Solus fireplace surround, you need to locate and dimension your fireplace’s ACTUAL OPENING. The actual opening refers to the exact area that you wish to leave exposed once the surround and any trim panels have been installed.

NOTE: This does not necessarily correlate to the dimensions that appear on your fireplace insert manufacturer’s spec sheet. Depending on the requirements of your fireplace insert, it may be possible to cover some or all of the black metal frame on the outside of the insert opening and you may opt to do so. Please check with your fireplace manufacturer or dealer to see if this is an option.

Once you have determined your actual opening size, you need to locate its proximity to the floor and clearances on all sides. Use the worksheet on page 2. You may be limited by the fireplace’s location near adjacent walls, doors, windows, etc, or by a “buildout” (an area of wall that is not flush with the surrounding wall - usually to accommodate a fireplace unit or firebox)

Please note the flooring type at the time of measurement as this may affect the final height dimension.

When you have all the required dimensions, you can reference our product spec sheets to see how to configure your chosen Solus fireplace surround. These sheets are available from Solus or online at www.solusdecor.com

A NOTE ABOUT DESIGN:

Please keep in mind the size of the Solus surround you are choosing relative to the size of your firebox or insert. You don’t want to choose a surround that will dwarf your insert, or vice versa. Furthermore, the heights of any of our surrounds may be reduced if it suits your room better. It is a good idea to use painter’s tape to mark out the outline of your future surround on your wall to see if the scale is right. Ultimately, these choices are up to you, but we would be happy to make recommendations.