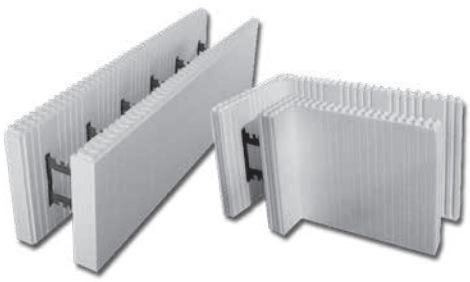
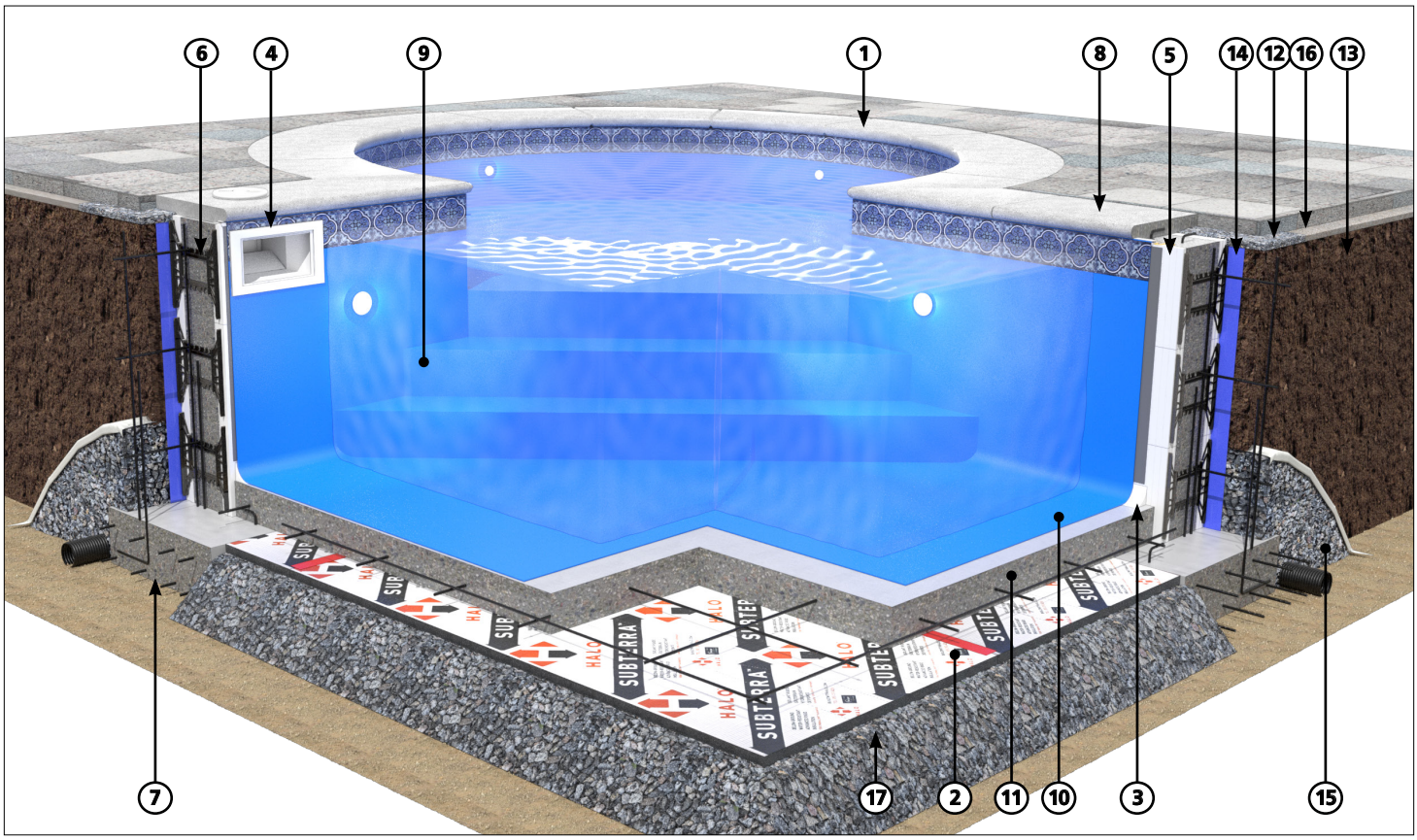
LOGIX®
INSULATED CONCRETE FORMS

POOL INSTALLATION GUIDE

Build **Anything** Better.™





1. **Radius walls built with Logix ICF.**
2. Provide continuous insulation under the slab. Subterra (shown in image) provides both continuous insulation and vapor barrier properties. Alternatively, Heat-Sheet insulated floor panels also provide continuous insulation and is designed to accommodate radiant tubing for heated slabs.
3. Chamfered foam sections at corners provide a smoother finish.
4. Logix can be easily cut to accommodate penetrations for equipment and services.
5. Pool walls built with Logix ICF. Use Logix Taper Top blocks for the top course.
6. Polypropylene web ties are designed with rebar slots to secure horizontal rebar in the proper location.
7. Footing and reinforcement, as specified. Typically strip footing or thickened edge slab.
8. Pre-formed or cast-in-place coping.
9. Pre-fabricated or cast-in-place stairs.
10. Pool finish typically plaster base or liner (liner shown).
11. Concrete slab tied into footing and/or Logix pool walls with specified reinforcement.
12. Gravel substrate.
13. Free-draining backfill.
14. Waterproof membrane applied against Logix.
15. Crushed stone with perforated drain tile and filter fabric.
16. Sand.
17. Compacted sand or gravel.

1.0 – INTRODUCTION

Insulated concrete forms have proven to be a superior wall system offering many benefits that conventional wall systems cannot easily achieve without added costs and materials. Pools constructed with ICFs are no exception offering several benefits over conventionally built pools.

ENERGY EFFICIENT
Logix ICFs are super insulated with a total of 5.5" of EPS (expanded polystyrene) foam insulation providing a minimum of R-24. Pools lose most of its heat through the walls and slab. Using Logix ICF with an insulated slab will reduce the heating load on the pool making it easier to maintain a constant temperature, and lengthen the pool season.

FASTER AND SIMPLER BUILD
Logix ICF are stay-in-place forms - no conventional formwork required. This reduces waste, time and labor. Logix are also light weight and easy to handle with no special equipment needed.

DESIGN VERSATILITY
Logix offers a number of form types and sizes to accommodate the design layout, including building radius walls. Because logix is made with EPS foam it can be easily cut on-site to suit any dimensions.

DURABILITY
The EPS foam does not promote mold growth or deteriorate, and does not lose r-value over time. In addition, the insulation protects the concrete from the natural elements, and reduces thermal expansion and contraction preventing cracking and spalling.

As ICF pool design and construction methods can vary, this document outlines some typical installation methods along with prescriptive design guidelines.

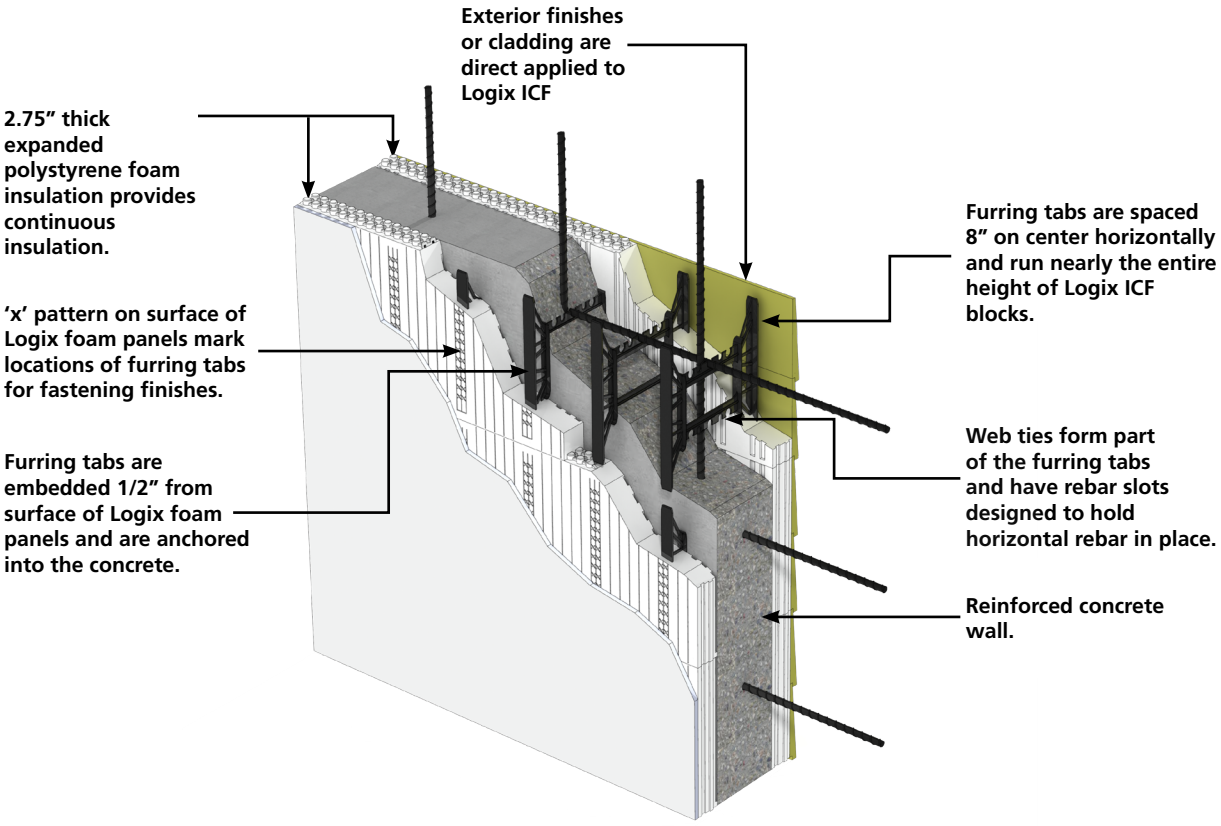
For more information, or to contact a Logix representative, visit our website at www.Logixicf.com. You can alos register online to receive Logix updates.

NOTE: This manual is subject to regular updates. Please visit www.logixicf.com for the latest version.

2.0 – ICF POOL DESIGN

Ideally, the pool design layout should consider the height of the pool walls to minimize waste and labor. Logix pool wall heights from top of footing should be in increments of 4 inches. The length of the pool walls can be any dimension - Logix can be easily cut on-site to suit any dimension.

ICF WALLS
Because ICFs are reinforced concrete walls sandwiched between a layer of EPS insulation, the structural design principles are no different than a conventional reinforced concrete wall.



For below-grade pools, the ICF walls and footings are designed as retaining walls resisting the backfill pressure plus any surcharge. This ensures the walls remain structurally stable if the pool needs to be drained.

Above-grade ICF pools are designed to resist the lateral pressure exerted by the maximum of height of water in the pool.

SLABS
The size of slab and rebar specifications should be followed, as specified by design. Typically the slab will be designed so that it is tied into the footing and ICF walls.

Depending on preference, the slab may replace the footing by creating a thickened slab around the pool perimeter. The ICF wall will sit directly on top of the thickened portion and will be tied to the slab with dowels.

FOOTINGS
Footings supporting below-grade pools should be designed to resist all relevant gravity loads, backfill and surcharge loads. For above-grade pools, footings should be designed to resist all relevant gravity loads and lateral loads caused by maximum height of water in the pool.

3.0 – ICF POOL CONSTRUCTION

Building a pool with Logix requires the same skill and materials as building a Logix home. For DIYers consult with a local pool supplier during design and construction (having the support of local experts goes a long way to ensuring a smooth project from start to finish).

After completing the pool design and consulting with equipment and pool finish suppliers, the process in building a Logix ICF pool will generally go as follows:

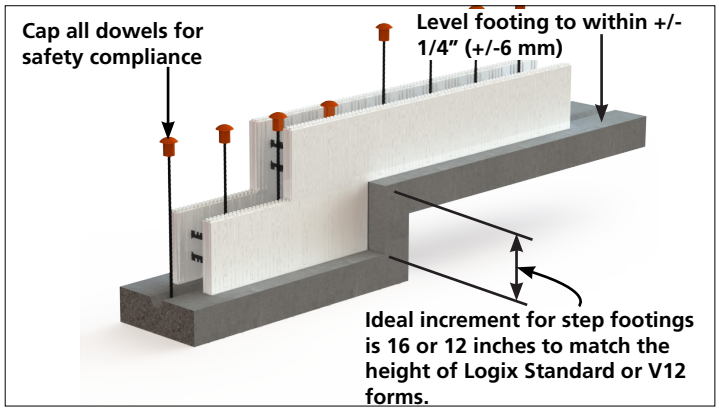
1. Prepare site and excavate
2. Place the substrate and build the footings
3. Construct ICF perimeter walls
4. Ensure all penetrations are in place
5. Provide bracing and additional form support
6. Place concrete for the Logix pool walls
7. Pour the slab
8. Backfill - install proper drainage and waterproofing, and ensure all penetrations are in place prior to backfilling.
9. Apply pool finish - make sure all penetrations are properly sealed before applying pool finish
10. Install coping, decking and landscaping
11. Fill the pool with water

3.1 – EXCAVATING
Site preparation is key before beginning excavation. Carefully plan the pool location and equipment by considering the following:

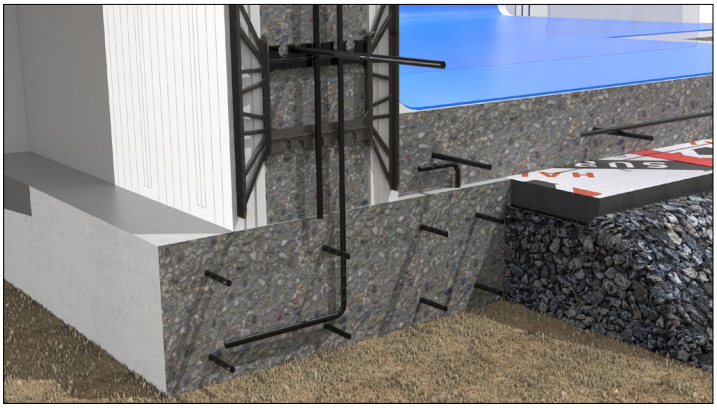
- Follow all local bylaws.
- Ease of access of backhoe for excavation.
- Plan for removal of excavated material.
- Know where underground services are located.
- Proper landscaping to ensure ground water drainage away from the pool.

3.2 – BUILD THE FOOTINGS

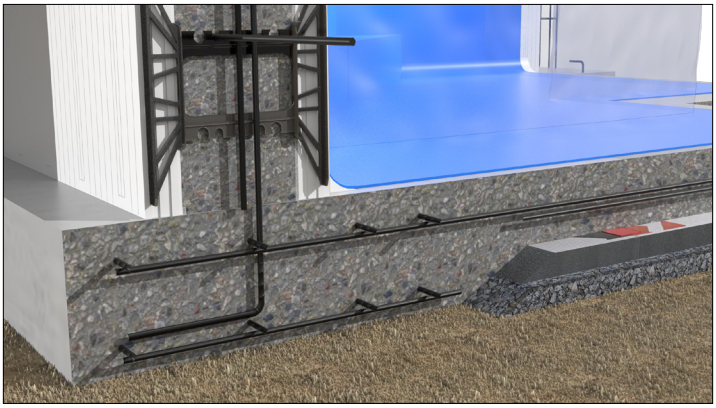
Either strip footings or thickened slabs can be constructed. The design of the footings or thickened slab portion should be constructed as designed. Level the footings to within +/- 1/4 inch. For more information refer to Section 2.3 of the Logix Installation Guide.



Step footing ideal increments.



Example of strip footing tied to slab with dowels.



Example of thickened edge slab tied to Logix with dowels.

CONCRETE PLACEMENT

Make sure all reinforcing, plumbing and electrical services are located and installed before concrete placement.

For thickened slabs, waterproofing admixture in the concrete is typically used.

REBAR DOWELS

Dowels are required to provide a proper connection to the ICF wall.

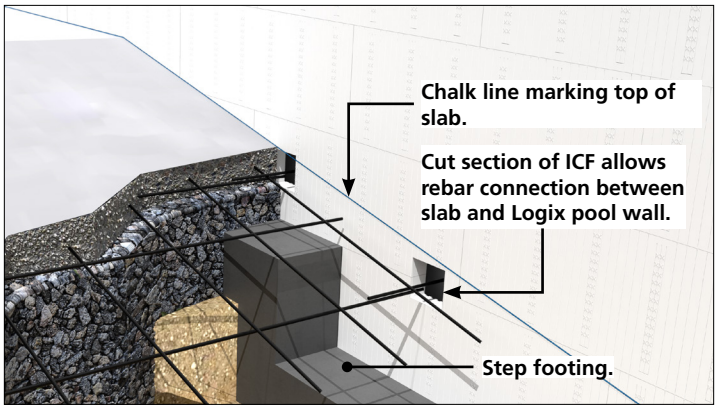
Dowels can be placed before concrete placement, wet-set into place, or drilled and epoxied after the concrete has set.

SLOPED SLABS

For sloped slabs a step footing is required when using strip footings. The height of the step footings should be either 12 or 16 inches to match the height of Logix ICF blocks.

Thickened slabs do not require step footings, but careful planning is important since the bottom courses of the ICF would need to be cut on-site to match the slope of the slab.

The sloped slab should be tied into the ICF at regular intervals, as specified.



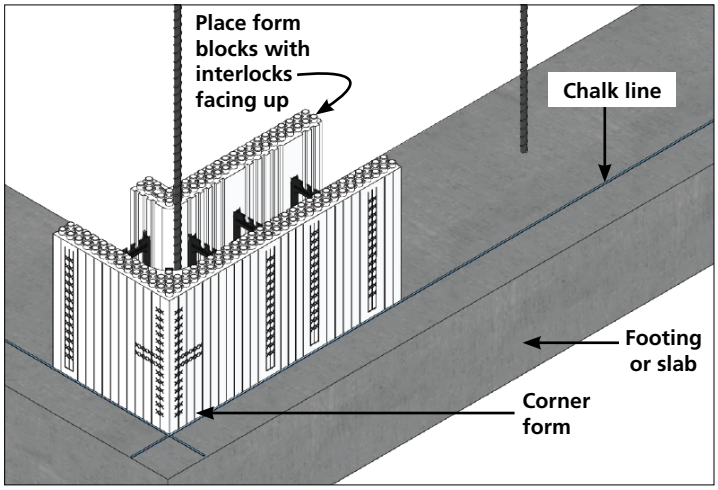
Step footing for sloped slab.

3.3 – BUILDING THE POOL WALLS

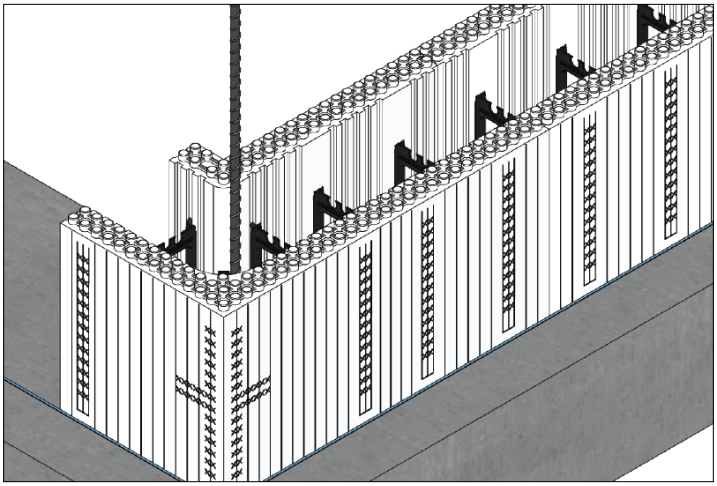
Building pool walls with Logix follows the same steps as building any structure with Logix including radius walls. Refer to Section 2.7.8 of the Logix ICF Installation Guide for details on creating radius walls.

INSTALLING THE FIRST COURSE

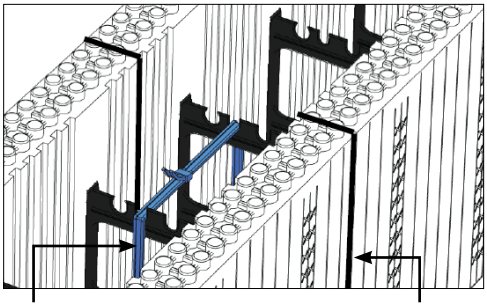
The following steps are general guidelines. For detailed installation refer to Section 2.7.1 of the Logix ICF Installation Guide.

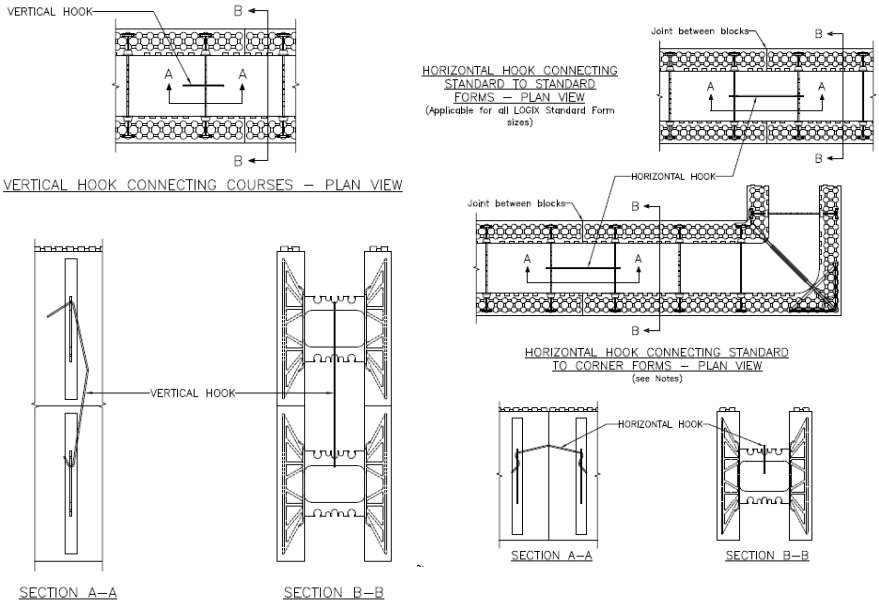


STEP 1: Start first course at a corner and align with chalk line.



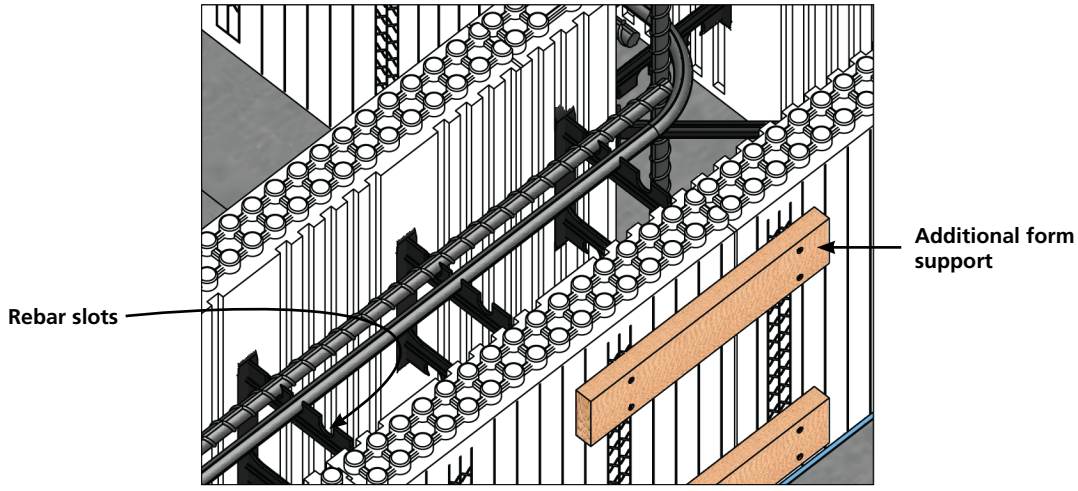
STEP 2: Continue placing forms along the chalk line.





STEP 3: Secure forms end-to-end to maintain building dimensions using zip ties or Logix Hooks.

STEP 4: Place the specified horizontal rebar in the first course. Logix ICF blocks have web ties spaced every 8 inches. These web ties are designed with slots that can secure horizontal rebar, and allows for non-contact lap splices. Refer to Section 2.8 of the Logix ICF Installation Guide for detailed information on rebar placement.



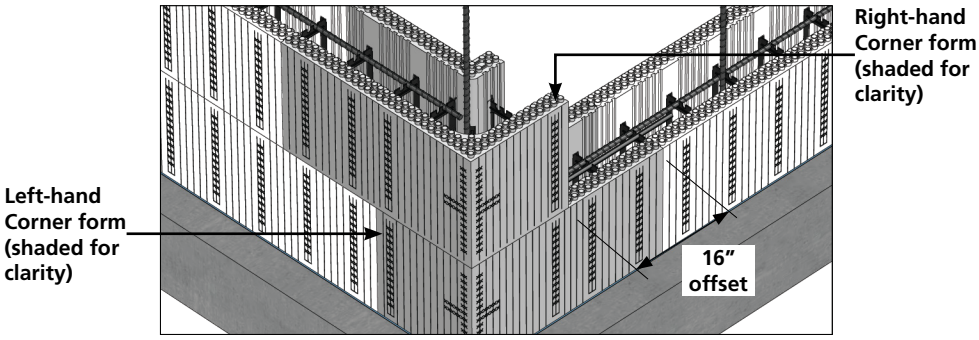
Place reinforcement and necessary additional form support prior to installing the second course.

NOTE: Pools built with reinforced concrete - whether ICF or conventional - are designed to be waterproof when the proper finishing application are applied. These type of pools use steel reinforcement and is typically safe from corrosion. However, if corrosion is a concern fiberglass reinforcement may be used. Fiberglass rebar will not corrode and may be preferred with the growing popularity of salt pools.

INSTALLING THE SECOND COURSE

The following steps are general guidelines. For detailed installation refer to Section 2.7.2 - "The Second Course" of the Logix Installation Guide.

STEP 1: Starting at the original corner, install a Left-hand or Right-hand corner form. When possible, alternate between Left- and Right-hand corners between courses.

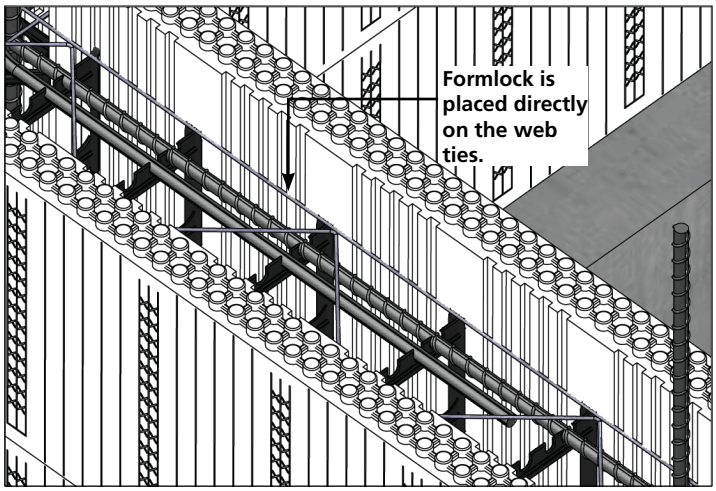


STEP 2: Continue placing forms around the wall, working in the same direction as the first course.

STEP 3: Secure forms end-to-end and between courses with zip ties, Logix Hooks or foam adhesive.

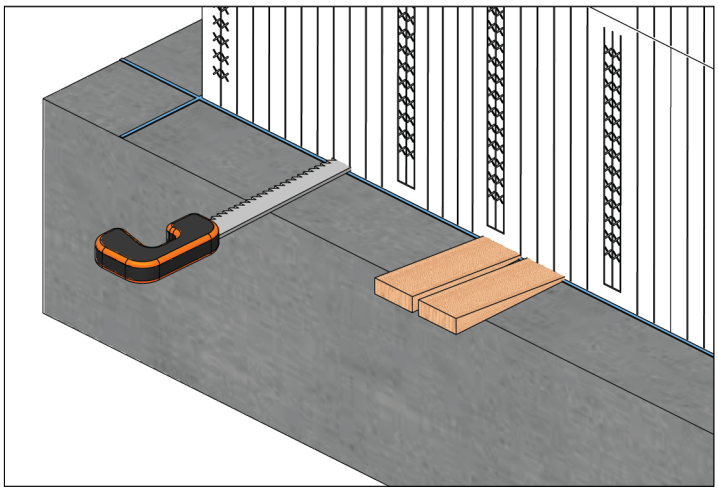
STEP 4: Place the specified horizontal rebar in the second course.

STEP 5: Form Lock can also be placed in the second course, if desired.

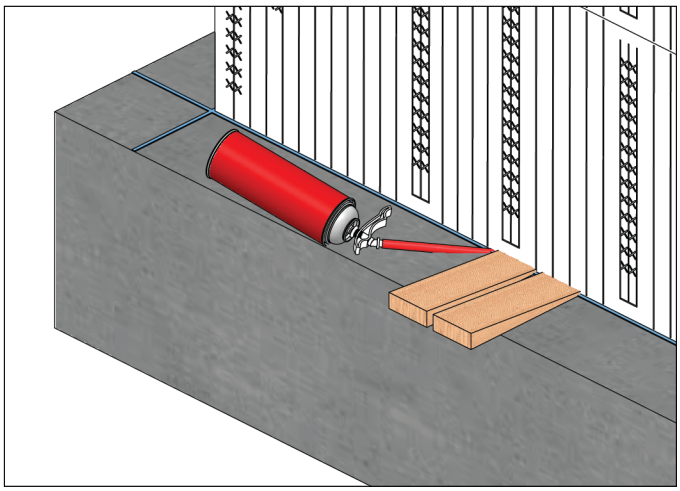


LEVEL THE WALL

With the two courses installed confirm the wall is straight and level.



STEP 1: Confirm that the wall is straight and level. If adjustment is required, shim or trim the bottom of the wall until level is achieved.



STEP 2: Use foam adhesive to fasten the straightened and leveled wall to the footing or slab.

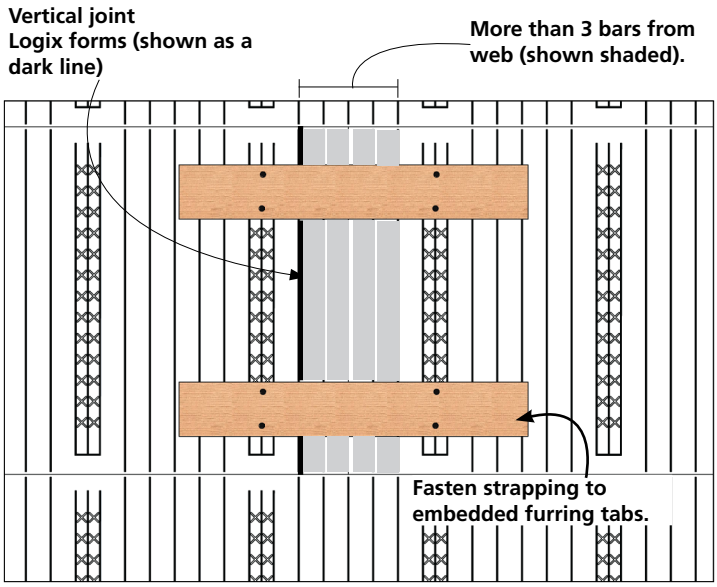
INSTALL ADDITIONAL COURSES
With the first (course 1) and second course (course 2) in place the wall pattern has been established. Course 1 will be the same pattern for all odd numbered courses (3, 5, 7, etc). Course 2 will be the same pattern for all even numbered courses.

For more information refer to Section 2.7.3 of the Logix ICF Installation Guide.

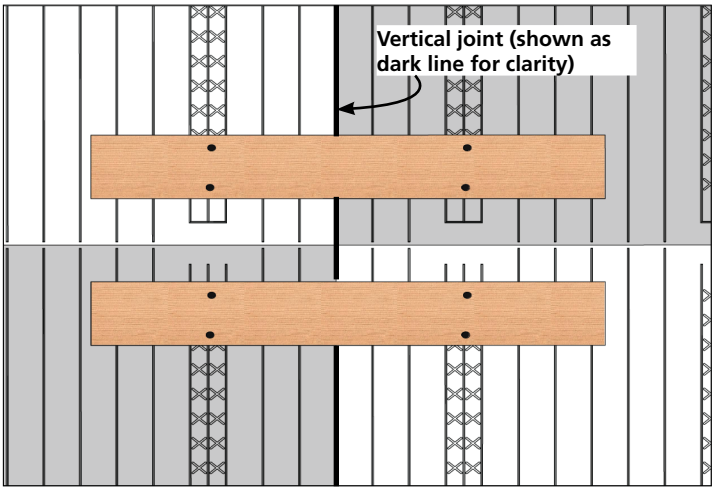
INSTALL BRACING
Bracing should be installed at some point between the second and fourth course, at no more than 7 feet intervals. Refer to Section 2-11 of the Logix Installation Guide.

To avoid conflicts with slab construction, the bracing is typically placed on the outside. Bracing can be placed on the inside in cases where the slab is poured ahead of the ICF walls, such as thickened slabs.

ADDITIONAL FORM SUPPORT
Depending on where cuts are made on the ICF blocks, additional form support may be required using wood strapping fastened to the embedded furring tabs within the Logix blocks. Refer to Section 3.10 of the Logix Installation Guide.



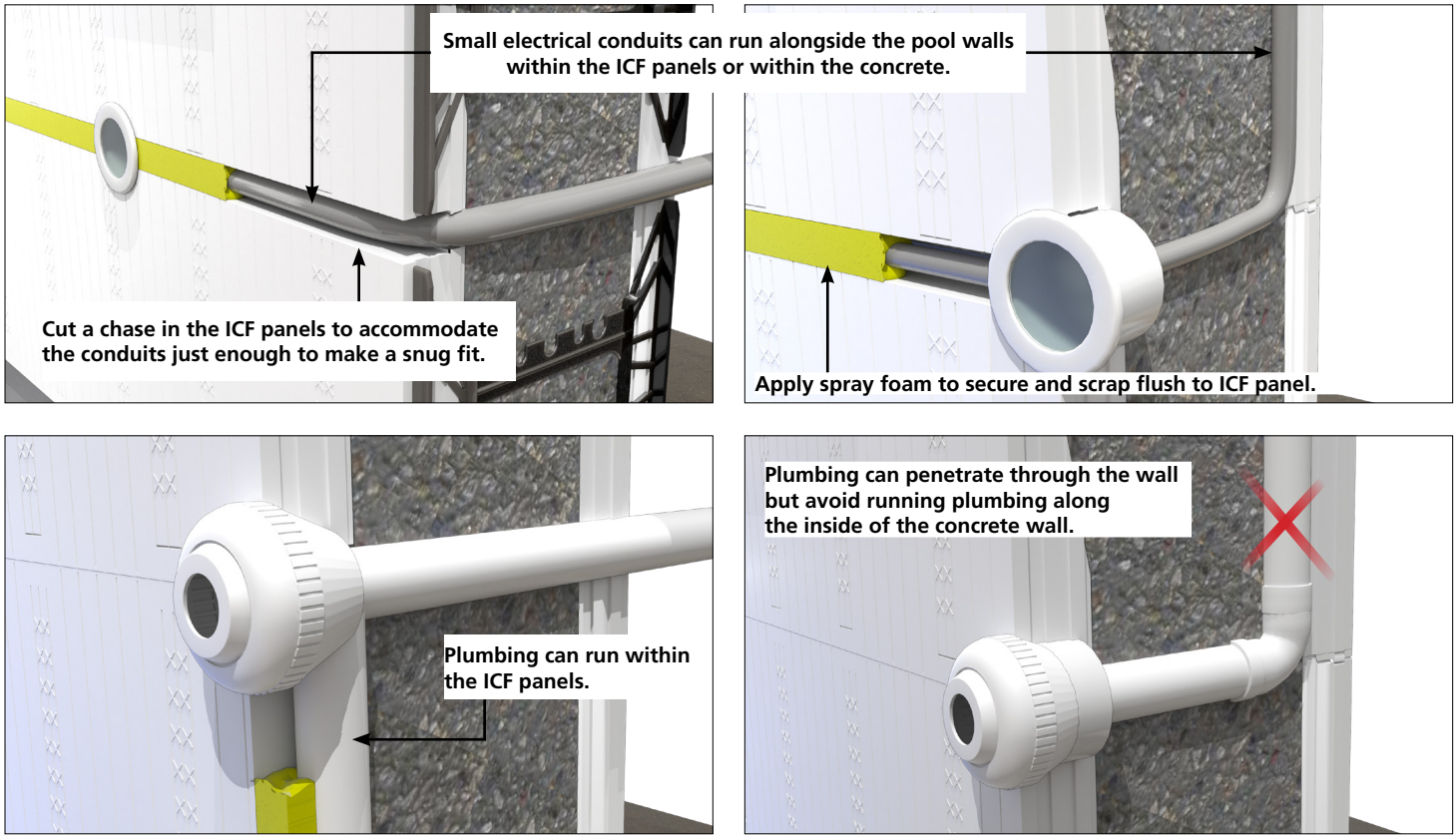
Provide wood strapping on both sides of Logix when there are more than 3 bars beyond a web.



Provide wood strapping on both sides of Logix when vertical joints are directly on top of each other, or offset between joints is less than 8" between courses.

3.4 – PENETRATIONS

After the pool walls are built make cutouts for skimmers, plumbing and electrical services. Install appropriate sleeves for plumbing and electrical services that need to run through the wall. Cutouts are also required for prefab stairs before concrete placement, or form the stairs to tie into the ICF.

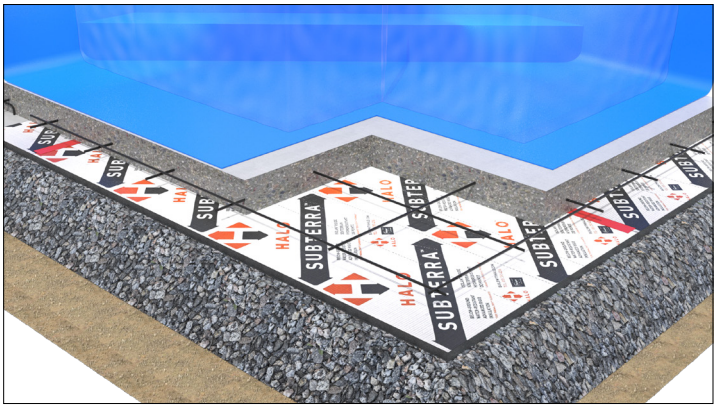


Consult with the manufacturer for recommended installation of all pool equipment services, including sealing methods.

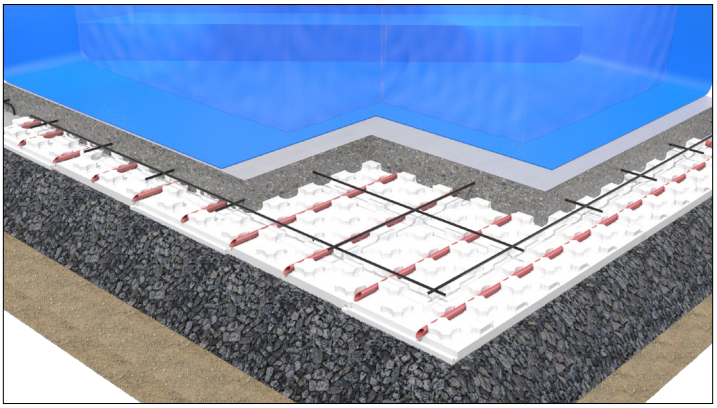
For sealing penetrations see Section 3.10.

3.5 – INSULATE POOL SLABS

Heated pools will also experience heat loss through the slab. To reduct heat-loss insulate under the slab to a minimum R10, or as required. Halo Subterra or Heat-Sheet radiant floor panels are recommended for under-slab insulation. For more information on Subterra and Heat-Sheet visit www.BuildwithHalo.com and www.Heat-Sheet.com, respectively.



Subterra rigid insulation provides both continuous insulation and vapor barrier properties.



Heat-Sheet insulated floor panels also provide continuous insulation and is designed to accommodate radiant tubing for heated slabs.

3.6 – CONCRETE PLACEMENT

Plan appropriately on whether concrete placement will be done for the Logix pool walls and slab together, or as a separate pour sequence. Placing the walls and slab together will save time in concrete setup and delivery. However, more planning is required.

Always begin concrete placement for the walls at least 2 feet from away from corners, and in one continuous pour. With pools having a deep end start the pour for the walls at the deep end.

A waterproofing admixture, such as Xypex (www.xypex.com) can be used in the concrete mix.

Note: some pool finish products may not require waterproofing admixture in the concrete mix. This should be confirmed with your local pool finish supplier.

Concrete placement should follow section 2.15 of the Logix ICF installation guide along with some important items to consider.

- Mark the top of slab on the ICF walls prior to slab placement.
- Confirm all rebar, penetrations and cutouts for pool equipment are in place.
- Make sure additional rebar is ready to be wet-set in place if needed, such as dowels, stirrups and coping rebar ties.
- If forming concrete stairs, make sure stair forms are in place with proper rebar connection detail to slab and ICF walls.
- Provide a waterproofing admixture, if specified, for slab and pool walls.
- Check wall bracing is properly installed, and add additional form support where required.

3.7 – INSTALL COPING

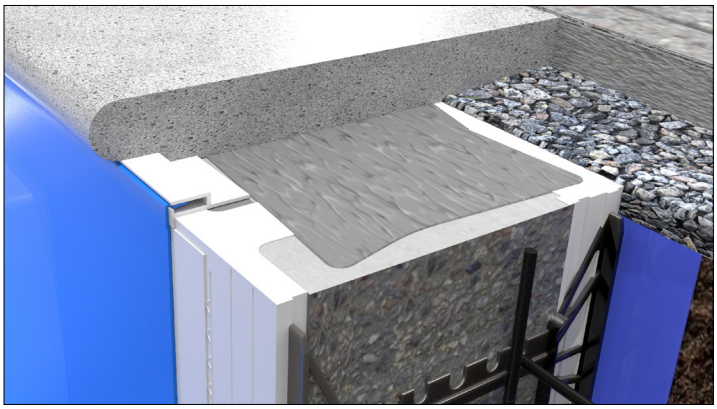
Pre-formed or formed on-site coping completes the top of the pool walls.

Trowel the top of the wall to a rough or fresno finish. This will provide a better bond for the coping.

Pre-formed coping can be secured to the top of the pool walls using thin set or other type of bonding agent.

Formed coping should have bent dowels to tie cast-in-place coping to the pool walls. If using a liner finish make sure to install the liner before casting the coping. See Section 3.10 for information on installing liner tracks.

Use rebar dowels to secure cast-in-place coping to the pool walls.



Apply bonding agent between top of pool wall and pre-cast coping.

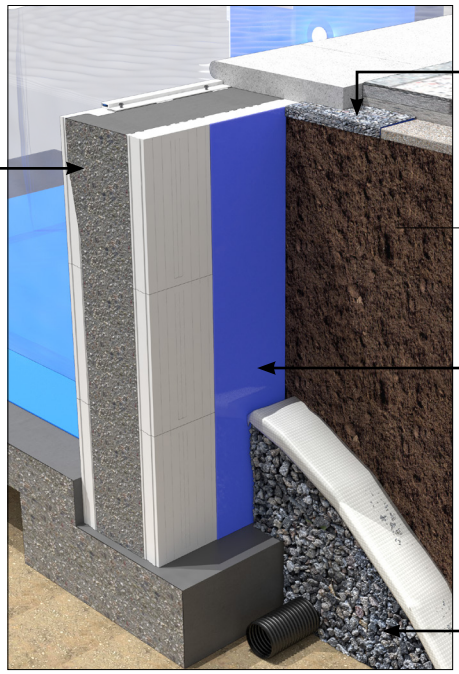
3.8 – EXTERIOR POOL FINISH

For above-grade pools any exterior finish can be applied. Stucco type finishes can be direct applied over Logix ICF, cladding can be fastened directly onto the ICF with fasteners attached to the embedded furring tabs. Refer to Section 2.18 of the Logix Installation Guide for more information.

For below grade walls if the concrete in the icf and slab contain a waterproofing admixture then additional waterproof treatment over the ICF is optional. Otherwise install a waterproof membrane on the below-grade portion of the walls. Refer to Section 2.18.10 of the Installation Guide for more info.

3.9 – BACKFILLING

If the pool walls are designed to resist lateral backfill and surcharge loads, backfilling can be done before the pool is filled with water.



3.10 – INTERIOR POOL FINISHES

There are various types of pool finishes compatible with ICFs, such as tile, vinyl, plaster, thermoplastics and liners. The more common finishes are pool liners and plaster based finishes.

PLASTER BASE FINISH

Plaster finishes provide a smooth durable finished surface and can be directly applied over ICFs. When properly applied they can provide a waterproof seal around openings.

The ICF surface must be prepped to receive the first base coat.

- Clean and lightly rasp the walls before applying basecoat.
- Foam fill any gaps and rasp flush to ICF.
- Cover all exposed lighting, skimmers, returns, jets, etc.
- Apply foam chamfers if required at wall corners and at slab/wall interface for a smoother transition.

There a number of compatible plaster base finish products for ICF pools.

- Ecofinish High Performance Coatings: www.ecopoolfinish.com
- Gigacrete: www.gigacrete.com
- Sider-Crete: www.sider-crete.com
- Pebble Tec: www.pebbletec.com
- Diamond Brite: www.diamondbrite.us

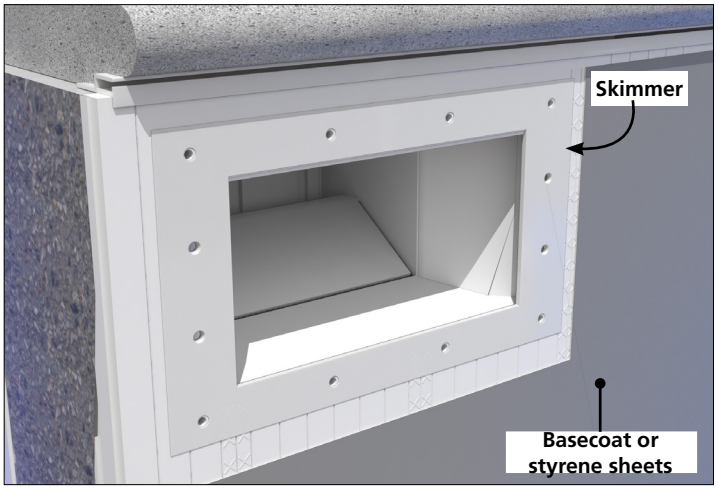
Always consult the finish supplier for recommended application methods with ICF pools.

VINYL LINERS

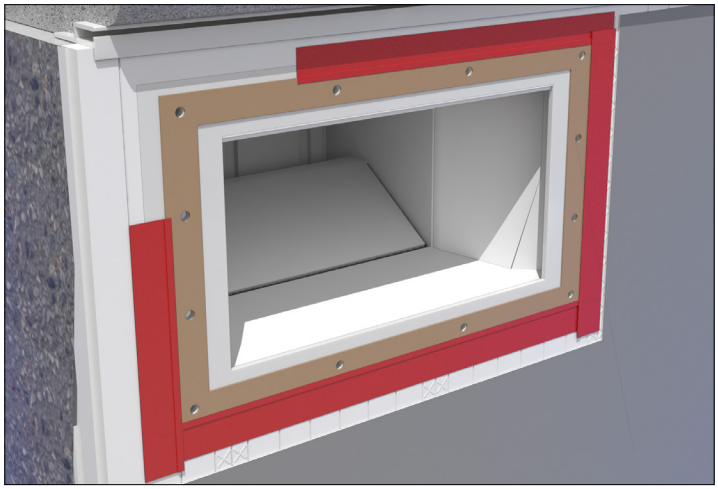
Vinyl liners are custom sized to fit most pool shape and sizes. To ensure a uniform surface free of dents or imprints caused during construction or end use a smooth base coat layer or styrene sheets are applied between the ICF and liner.

Sealing around penetrations is simple but should be done with care to ensure no damage is done to the liner. Small penetrations, like returns, have a rubber gasket and seal placed first then the liner is installed over it and cut out around penetration.

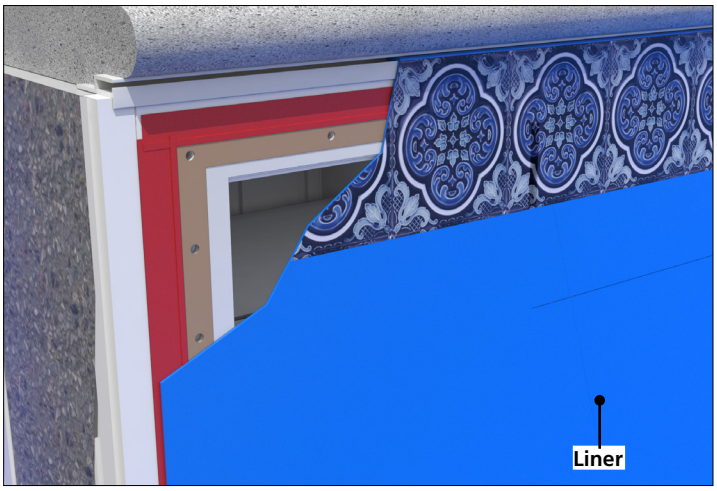
For larger openings like skimmers, two gaskets are usually supplied. To ensure proper sealing around skimmers follow the steps below.



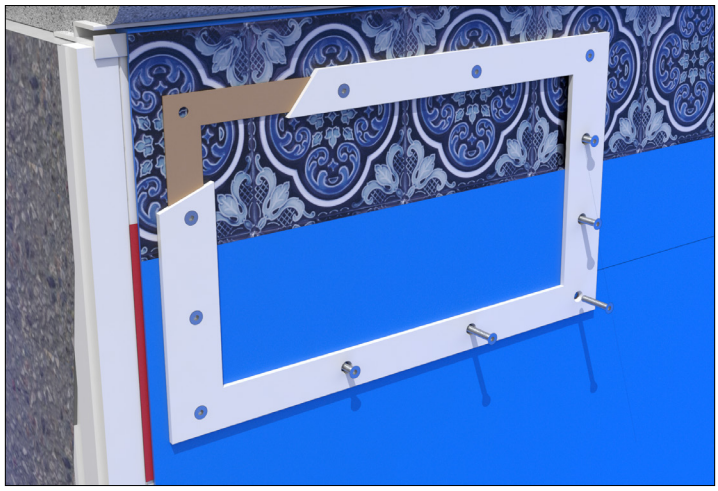
STEP 1: Field cut the ICF panels to accommodate skimmer placement.



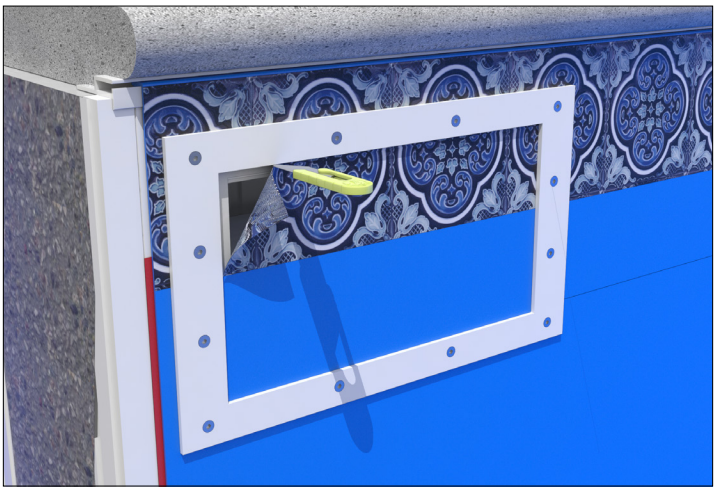
STEP 2: Secure the first gasket over the skimmer with tape. Make sure to align the screw holes, and avoid covering the holes with tape.



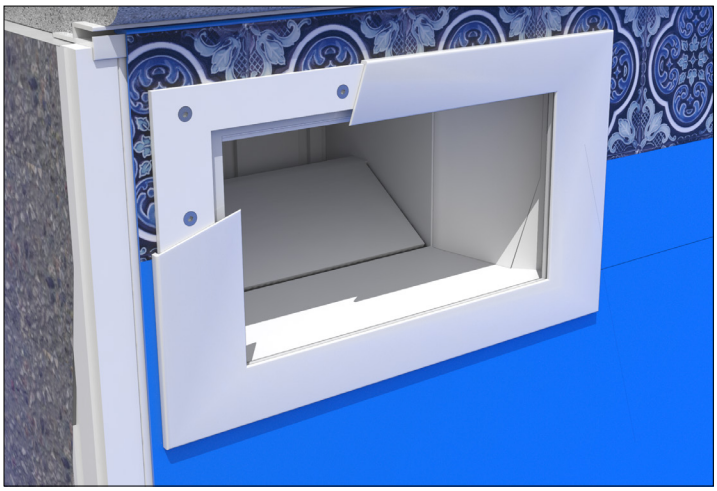
STEP 3: Install the liner, as required covering the skimmer opening.



STEP 4: Fasten the second gasket and face plate to the skimmer. Make the sure the screw holes line up. You can feel the screw holes under liner by rubbing your fingers across the liner.

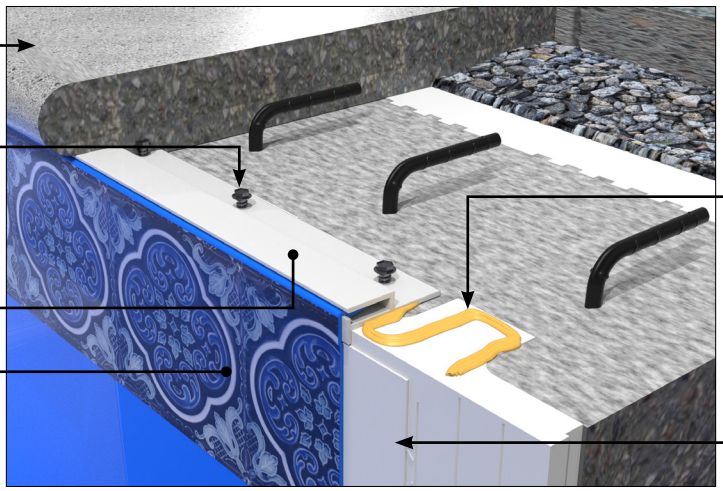


STEP 5: After securing the face plate use a sharp blade to carefully trim the liner to expose the skimmer opening.

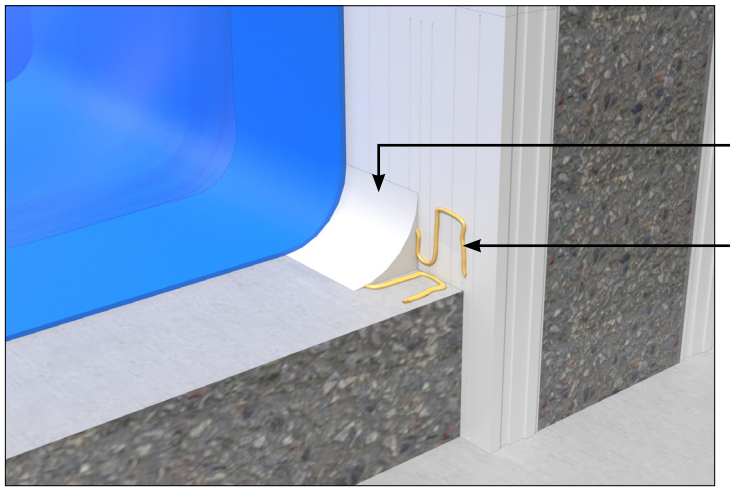


STEP 6: The skimmer cover plate can now be placed over the face plate completing the installation.

To support the liner a liner track is installed at the top of the pool walls. The track rests on the foam section of the ICF and is secured in place with foam adhesive such as Great Stuff Foam. Hex head screws can then be partially drilled leaving a 1/2" to 3/4" gap between the screw head and track permanently securing the track.



To minimize creases use foam chamfer strips at corners and slab perimeter before installing the liner. The chamfer strips can be secured using foam adhesive.



Always follow the liner manufacturer installation instructions.

3.11 – COMPLETE THE INSTALLATION OF THE POOL SERVICES

Unfinished pool services such as skimmer baskets, drains, jets and lights should be completed before filling pool with water.

Connect with a Local Manufacturer

888.838.5038
330 Cain Drive
Haysville, KS 67060-2004

888.453.5961
11581-272 St.
Acheson, AB T7X 6E9

888.706.7709
840 Division St.
Cobourg, ON K9A 5V2

888.453.5961
6333 Unsworth Rd.
Chilliwack, BC V2R 5M3

877.789.7622
35 Headingley Rd.
Headingley, MB R4H 0A8

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