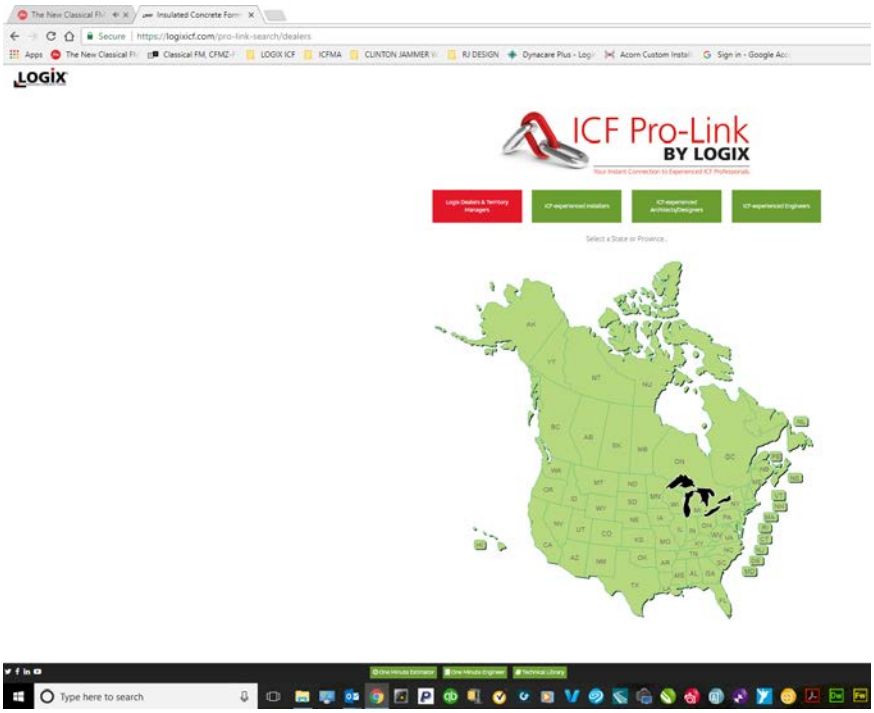
How To Build Your Home With ICFs – Design Tips (and the Most Common Mistakes To Avoid!)

Now that you've established your personal priorities and limitations (see the previous article), it's a good time to engage a designer to create your home plans.

Engaging a designer that is already experienced with ICFs has many inherent advantages. An ICF-experienced designer won't be "learning on the job", so the design process will likely be smooth and efficient. Here are some tips for finding an ICF-experienced designer for your ICF home:



Start by visiting ICF Pro-Link By Logix where you have two options:

1. You can contact a local Logix Territory Manager or Logix dealer to get referrals for local ICF-experienced designers who would be a good fit for your specific project; or
2. You can locate and contact local ICF-experienced designers directly.

Browse the ICF Pro-Link map now

Of course, there may also be reasons why you might want to work with a designer that does not have ICF experience. If this is the case, here are some tips for engaging a designer who is not ICF-experienced:

- Ask the designer to contact Logix ICF or your local Logix dealer to arrange for appropriate technical support. Successful, high quality Logix ICF home designs are routinely prepared by quality designers who arrange for proper technical support when it's their first Logix ICF design.

- Logix regularly offers a free, 30-minute, interactive webcast called "A Primer for First-Time Logix Designers & Builders". The informative and helpful webcast outlines the various support elements that are available to designers. Visit this webpage, which explains the Logix support program and contains links for your designer to register for the Primer webcast.

Helpful Tips for the Efficient Design of Your Logix ICF Home

Designing a home with ICFs is a relatively straightforward process, and all the necessary CAD details are readily available. Here are some handy tips to keep in mind as you proceed through the design process:

Converting an Existing Conventional Plan

- ICF walls are typically thicker than wood-frame walls. When converting a home plan, it's best to keep the internal dimensions true and have the increase in wall thickness *moved outward*.
- Pay close attention to small spaces like stairwells and bathrooms. Any decrease in floor space can disrupt the efficient design of interior spaces that are often small to begin with. There may also be local building code requirements and standard required sizes for these smaller areas that may need to be adhered to.

Using the Appropriate Thickness of Concrete Core

Logix ICFs are offered in concrete core thicknesses of 4", 6.25", 8", 10" and 12" to accommodate a wide range of loads and performance factors. The thickest concrete core is typically used in the foundation, and the thinner cores are typically used in the main and subsequent floors. To maximize available interior floor space as well as minimize the cost of materials, here are a couple of tips:

- Use the minimum required concrete core on each floor. Run different scenarios through the Logix One Minute Engineer to determine what those minimum requirements will be.
- Transition from one concrete core thickness to another at the floor level. This helps to hide the transition.

Bump Outs

It's best to avoid bump out details if you can. They increase cost and tend to make the wall area less usable for everyday living. If you do wish to have bump outs, it's most efficient to design them with an offset of 16" (which is good) or 32" (which is better).

Logix Block Coursing

- When starting the design process, keep in mind that, with Logix, you can build to 4" increments without any horizontal cutting or waste. With this is mind, you'll be most efficient when you design the total height of the Logix walls to the closest 4" desired increment, while remembering to consider the depths of the slab and floor systems as well as the desired ceiling heights.

- Whenever possible, it's best to position windows to sit on the top of a given course of Logix blocks to minimize cutting.

Door & Window Openings

- The most efficient header thickness to design to is 16".
- Try to keep 12" between openings.
- If openings must be closer than 12", it's advisable to treat the configuration as a single opening.
- Logix Pro Buck™ is a highly insulated, rot-resistant EPS bucking system for door and window openings that greatly adds to the overall long-term thermal stability of a home. If you decide to complete a building envelope with Pro Buck™, remember to design your door and window opening sizes with Logix Pro Buck™ in mind.

Plumbing & Venting

- Water closet vents are too thick for ICF walls and therefore need to be installed in an interior wall partition, which is the more typical location for them anyway.
- Pre-plan the location of all exterior wall penetrations to the extent that's possible.

Optimizing the Lengths of Wall Sections

- Vertical cuts are eliminated in wall sections (and maximum speed and efficiency are achieved) when the length of a given wall section is the sum of the length of the long corner leg + the length of the short corner leg + the appropriate multiple of 4 feet.

- When this is not possible, vertically cutting ICF blocks on an embossed cut line efficiently preserves the interlock and is the next best option. This also eliminates the need for 'stacked seams' and additional form support that will have to be applied and then removed after the concrete pour.

Other Design Tips

- Avoid cantilevers whenever possible. Cantilevers can be done, usually with steel beams, but it's advisable (and more cost-effective) to avoid them if possible.
- In some cases, if you build your basement walls with seven courses of Logix ICF, you'll create a ceiling height of 9'4", which is very desirable for lifestyle, but awkward for drywall applications. If 9'4" is your ceiling height in the basement, consider attaching a rim of 4" OSB around the bottom perimeter. This provides a good fastening for baseboards where you can then simply place 9' drywall on top of the OSB rim to quickly finish the walls to the ceiling.
- If you have an interior vaulted ceiling in your home design, it's advisable to build your gable ends with ICF.