

Build It Right

The construction process



BUILD IT RIGHT

Introduction

Building a custom home is complex. This is why it is essential to understand the construction process so you can manage and control the project more easily.

Few people who build a custom home ever take on the whole project themselves. To bring the project in on the projected timeframe and budget you will need to be able to access a team of professionals with expertise in various fields.

This should in no way discourage you from building your dream home. When you are informed on how construction works and follow the right steps, building a custom home can be a rewarding experience. You can get exactly what you want provided it is technically possible. People who own custom homes enjoy a superior lifestyle and generally have a more valuable investment.

This publication is intended as a guideline to help you understand the construction process and how to better manage your project. We look forward to assisting you once you are ready to build.

THE CONSTRUCTION PROCESS

Introduction

Home construction a sequential process, as one specific job is generally followed by another. The activities can be grouped into three main categories:

- Site evaluation
- Preparing the building site
- Construction of the home to lock-up
- Finishing the interior to occupancy

Site evaluation

A number of factors will affect the type of design you can build on your property, where you can build it and the construction timetable.

- Access
- Set back requirements
- Septic disposal system
- Soil conditions / drainage
- Special features – lake, view, etc.
- Availability of services
- Foundation placement / orientation
- Weather issues / special circumstances

All of these factors are taken into consideration to provide you with the best site specific design.

Preparing the building site

Site preparation is highly dependent on seasonal conditions. It usually can take 4 to 20 weeks to prepare a construction site depending on site conditions. It can take longer in areas with access restrictions or geo-technical challenges. Seasonal and weather conditions are important to observe and the following factors need to be considered in getting the site ready for construction.

- Seasonal road weight restrictions
- Access to the building site
- Ability to excavate foundations
- Temperature for pouring of concrete
- Weather conditions for backfill of foundations

Once permits have been received the site preparation process can begin. This involves a variety of tasks depending on the design chosen and the location of the home.

Land Clearance

The land needs to be cleared of excess trees and vegetation in the general area where the home is to be located. This enables an evaluation of the best place to build the home and work with the natural features of the property.

A geo-technical survey can then be carried out to determine any potential challenges such as blasting or soil stabilization issues before excavation starts.

The objective is to minimize the costs of site development by producing the best solution for road access, site services and excavation.

Access Roads

Access roads to the building site may need to be constructed. Considerations need to be given to placement of roads for initial functional issues and later finished appeal.

- Truck access
- Septic field position
- Site services installation
- Home & parking locations
- Working with natural terrain
- Landscaping & appeal

The surface of the road may be blacktop, concrete or gravel. An appropriate base needs to be built beforehand so that the road remains usable in different weather conditions.

Demolition

Some sites may have existing buildings that need to be removed before excavation can begin. The actual demolition process is usually quick.

However, demolition may require special permits and approval. Care should be taken that demolition does not adversely affect existing zoning or set-back covenants. Waste may need to be separated to meet local disposal requirements.

Arrangements will need to be made with service providers to disconnect power and utility services.

Septic Field

Many remote locations do not have access to municipal sewer and septic field is required. The nature of the field will be determined by local guidelines. A permit will be needed before building permits are issued. In some areas engineered fields are required.

The placement of the field will be determined by set-backs from the property line, proximity to water and the percolation capability of the natural soil.

Care should be taken not to place the septic field where it will adversely affect the location of the home or access roads.

Site Services

Site services need to be brought from the property line to the home. This usually involves excavation for line placement and needs to be coordinated with the road access and foundation work.

Conduit or piping should be built into the foundation to allow access for the following:

- Water
- Sanitation
- Electric
- Gas
- Telephone
- Cable

Construction of the home to lock-up

Excavation

Excavation for placement of foundations can only take place when the weather conditions are right. It is difficult and more costly to excavate in wet or extreme cold conditions. The best time to excavate is when it is dry and warm and the soil is easy to handle.

Unless blasting or soil stabilization is an issue, excavation usually takes place in a few days.

Foundations

Homes are usually constructed with a concrete crawl space or basement. Concrete forms are built to the dimensions required by the applicable structural code and steel reinforcement is placed accordingly.

Foundations are poured in three stages. Footings and walls must be poured before construction can start. The interior slab is usually poured once the main floor is in place. Cement cannot be poured below freezing temperatures without special procedures.

Backfilling

The foundations must be backfilled to protect them from the weather and for landscaping purposes. Prior to backfilling a protective coating is placed on the outside of the foundation wall. Drainage is also installed around the base of the wall at this time.

Depending on the foundation layout, the main floor may also have to be installed before backfilling to provide structural strength to the foundation system.

Backfilling should only be carried out in relatively dry conditions and using the right kind of compactable material.

The Lock-up Process

Once foundations are in place the construction of the home to the lock-up stage can begin. Lock-up in construction terms means that the home is weatherproof and secure. Construction to lock-up is a sequential process and cannot simply be expedited by adding manpower:

- Framing of walls, stairs and roof
- Floor structure
- Installation of roofing material
- Rough-in of utility services
- Installation of windows & doors
- Application of siding

It is considered complete when walls, floors, roof, windows and exterior doors are in place. An inspection will take place to determine the structural integrity of the home construction and its compliance with building codes.

Framing

Framing refers to the construction of the structural shell of the home. This starts with any framing required to complete the foundation walls.

Next the main flooring system is installed and both exterior and interior walls are placed on the floor platform. Upper floors can then be constructed. All exterior walls will be sheeted and vapor barrier applied. Roof rafters and any supporting beams are then put into place ready for the installation of the roof.

Structural requirements are specified in the blueprints as well as the placement of windows, doors and other openings.

Roofing

Once the structural framing is complete the roofing crew can begin work. The roof system will be designed to support the material selected.

Particular care needs to be taken in high snow or wind load areas. Complex roof systems will require ice and water shield to be installed underneath the roofing material. In some cases electrical heating can also be used.

Roofing properly installed provides for adequate cross ventilation to allow any moisture to evaporate and heat to dissipate.

Services Rough-in

Once the walls and roof are in place the following services can be roughed in:

- Heating & Ventilation
- Sewer or septic
- Plumbing
- Gas
- Electric
- Telephone
- Cable

These activities could be carried out at the same time in many cases depending on availability of trades. Inspection of rough-in services may be required in some areas before siding can be applied.

Windows & Doors

Once the roof is in place the windows and exterior doors can be installed. Proper installation involves placing flashing above the units and applying protective caulking around all seams. Window and door trim can then be put in place.

The exterior structure is complete and ready for a framing inspection. Siding can then be installed.

Siding

When siding is installed the objective is to use material efficiently and eliminate waste. Getting siding pre-stained provides maximum installation flexibility.

Use longer lengths of siding material first where possible without cutting. Shorter pieces and off-cuts of material will be used later between windows and tight spaces.

Painting and staining of siding can only be carried out when weather conditions permit.