

# **From the Ground Up**

**A Step by Step Guide to Custom Home Design**

**Jeremy B. Walter**

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info@bossdesign.ca

780/ 651-4555

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## **Acknowledgements**

Endless thanks go to my wife, for ensuring I am well fed with a cup of coffee in hand ready for the day. For all the hours spent listening to you while not listening at all—I love you and hope you still love me.

Huge thank you and kudos to my family & friends for the support, advice & guidance over the years. Boss Design Ltd is headed in a direction that I am very proud of. A company with integrity and passion is what I always envisioned and each day we are making huge steps towards great success. For this I thank you.

## About the Author

Jeremy Walter is the principal designer & founder of Boss Design Ltd, based out of Edmonton, Alberta, Canada, in Western Canada's industrial heartland. His enthusiasm and attention to detail has created him a vast project & client portfolio, and has given him great credibility within the design & builder community. With Boss Design Ltd being built solely on referrals, this emerging design firm is well on its way to great things.



**BOSS**  
DESIGN LTD.

Dear Reader,

Thank you for purchasing my first book,

**From the Ground Up — A Step by Step Guide to Custom Home Design.**

I hope these chapters serve you well in educating yourself in the world of home design and give you the confidence to create the home of your dreams.

I would be very interested to hear your comments and get your feedback on how you enjoyed the guide. Please feel free to let me know what you think via the following form at [www.bossdesign.ca/contact.asp](http://www.bossdesign.ca/contact.asp). If you think you have found a technical error in this book, please contact us via the following form at [www.bossdesign.ca/contact.asp](http://www.bossdesign.ca/contact.asp). Customer feedback is critical to our efforts at Boss Design Ltd.

***Best Regards,***

***Jeremy Walter***

***President & Lead Designer***

***Boss Design Ltd***

## **Welcome to the World of Home Design!**

From the team at Boss Design Ltd, we would like to welcome you to our design guide. We hope the content of this guide will serve as a great resource for the design and construction of your new home. The same passion, enthusiasm and attention to detail that goes into every home we design, has gone into our design guide. As you read through the chapters, we hope your design comes to life!

### **About us**

It's all in the details! This is the philosophy that Boss Design Ltd has utilized since its inception. With this philosophy, we are proud to say that we have built our business solely on referrals.

We believe in creating lasting relationships with our clients. Truly understanding our clients' lifestyles and dreams is the only way to design a house that you and your family can call a home.

At Boss Design Ltd, we work diligently to not only design your home but to elevate the knowledge level of our clients. It's our responsibility to ensure our clients have the information they need to complete the design and construction of their dream home. This is what sets us apart; the commitment to the whole project, not just to our portion of the work.

Whether your home is large or small, in the city or on an acreage, we will assist you throughout the whole custom house design process. With the help of some sophisticated

technology, we can ensure that the house we have designed is exactly what you envisioned.

*In addition to these chapters, you can view multiple stock plans, 3D Renderings & other information on our website, [www.bossdesign.ca](http://www.bossdesign.ca) and our Facebook page. We hope it serves you some valuable inspiration.*

Enjoy!

Jeremy Walter & the Boss Design Ltd. team

## Introduction

So here you are, deciding to embark on one of the most thrilling journeys that a family is ever likely to take. For most people, designing and building a home is the largest single investment they ever make. Surprisingly though, many people begin this process with very little information and quickly become overwhelmed with decisions. All too often, these important decisions are made spontaneously with little consideration on how they may affect the future use of the home.

Whether you have decided to design and build your first family home, or the retirement home of your dreams, this series of chapters will help guide you, step by step, through the process. At first thought, the home design process can seem like a daunting task. Where to start, who to hire, and what to think about, are all questions that clients may be asking themselves. The purpose of this guide is to raise the knowledge level of the consumer and empower them to make sound decisions for their families and their future.

*As you read through the chapters, feel free to take notes for any questions, concerns or topics that you want to discuss with the designer, builder or trades. Don't be shy—you need to be comfortable with your home so get comfortable asking questions!*



## Getting Started

The very first thing that should be considered when building a new home is budget. It is critical that a lot of attention be given to this area in the early stages, because clients and architects can easily get carried away with design ideas that may blow a budget out of the water. A house plan that is designed unrealistically large or with too many extras, is merely a waste of time and money. The client is left with an unfeasible plan that doesn't coincide with their financial limitations. Sitting down and considering needs and affordability, either alone or with a builder, can save considerable set-backs. A builder is able to discuss how different sizes and options directly affect a budget.

Occasionally, property taxes are overlooked when designing a house. This can cause continued financial hardships in years to come, because of their expense. Generally, the larger the house, the more expensive the property tax. That point alone may call for a re-evaluation of the budget. Establishing a budget helps to initiate the design process and provide momentum to move forward. Clients doing research gain a lot of information and understanding. This enables them to make calculated decisions that not only work for today, but also for the days and years to come.

*Every foot of development in a design translates directly to the overall cost to build the home.*



(Tarland bungalow 2791 sqft.on [www.bossdesign.ca](http://www.bossdesign.ca) )

*Consider what options in the design you would be able to eliminate if the cost to build becomes too high.*

## **Compile Your Wish List**

Ideas are everywhere! Resources such as magazines, books, show homes, and the internet will provide clients with countless options and inspiration to create their dream home.

Some items that could be included in a wish list are:

- Window styles—(bay windows, grille patterns, window geometry, colors, etc.)
- Fireplace designs—(stone work, mantles, hearths, interior/exterior, etc.)
- Interior details—(arches, niches, bulkheads, columns, etc.)
- Room styles—(dining room, great room, ensuite, theatre, etc.)
- Kitchen designs—(traditional, Victorian, modern, islands, cook tops, etc.)
- Stair orientations—(curved, open risers, angled, square, railings, etc.)
- Lighting ideas—(pot lighting, kitchen lighting, exterior lighting, etc.)
- Ceiling treatments—(vaulted ceilings, raised ceilings, tray ceilings, bulkheads, etc.)
- Exterior façade—(exterior finishes, roof designs, entrances, etc.)

Creating a wish list is a valuable exercise while designing a custom home or selecting a stock house plan. Before meeting with a designer, it is highly suggested that a client compile a list of everything they like and would want to have incorporated in their house. This will improve communication between the architect and the client, allowing the professional to offer advice and guidance about which items will compliment the overall design.

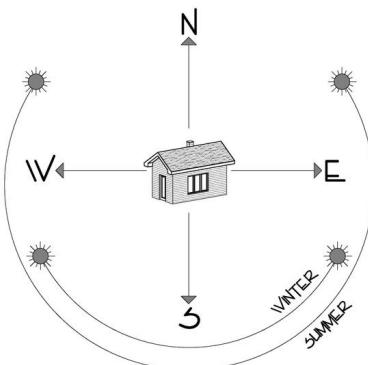
Magazines and books will often showcase high-end finishes and options photographed by professional photographers. Therefore, it is important to exercise caution in what it might take to make those ideas a reality.

*Please follow the link to our [Client Wish List](#) located at [BossDesign.ca](http://BossDesign.ca). Using this tool as you go through each chapter & section of the home during the design process will help you determine some must-haves prior to your first meeting with the designer.*

## Site

Before beginning the design process, it is recommended, and sometimes necessary, to visit the building site. Every site provides unique conditions that can make a huge impact on how the potential house should be designed. Conditions such as orientation to the sun, slope of the land, attractive views, and neighbouring homes need to be taken into consideration.

Knowing that the sun rises in the east, and then continues on a southerly course before setting in the west, can impact many design decisions in a home. The homeowner should consider which rooms they want to receive the morning, day and evening sun. In conjunction with room placement, the positioning of windows will maximize the amount of natural light and radiant heat entering the house.



*The angle of the sun relative to the horizon in the Northern Hemisphere will vary throughout the year between the winter and summer solstices.*

*This plan illustrates a walkout basement.*

Grading and natural land contours may present opportunities for raised patios, deeper basement windows, and walkout basements. Depending on the slope of the land, it may be more practical to use a particular house style; whether it be a bungalow, bi-level, or two storey. Many building sites provide attractive views of treed areas, parks, or green spaces. These should be taken advantage of when designing both the house layout and outdoor leisure spaces.

On the contrary, neighbouring homes often create challenges to a design. In some instances, a house can be oriented differently or pushed back further on the lot, to capture a scenic view or a certain portion of the sun's movement. Other situations may require rooms to be relocated to optimize limited views caused by neighbouring homes.

*Selecting your particular home site should be one of the first priorities when starting the custom home design process.*

Construction within a city, town, or subdivision amplifies the importance of reviewing the site plan. Jurisdictions within these areas dictate guidelines which must be followed when designing a house. House width, depth, height, window size and placement, and site coverage are all factors that the jurisdiction reviews before issuing permits. It is critical to be aware of what limitations each site presents in order to prevent setbacks that will cost the homeowner time and money.

On the flip side, sometimes a client has

*Not all lots are created equal!  
This illustration shows many  
pie shaped and square lots all  
with different sized backyards,  
and sun exposures.*

looking for a potential building site.

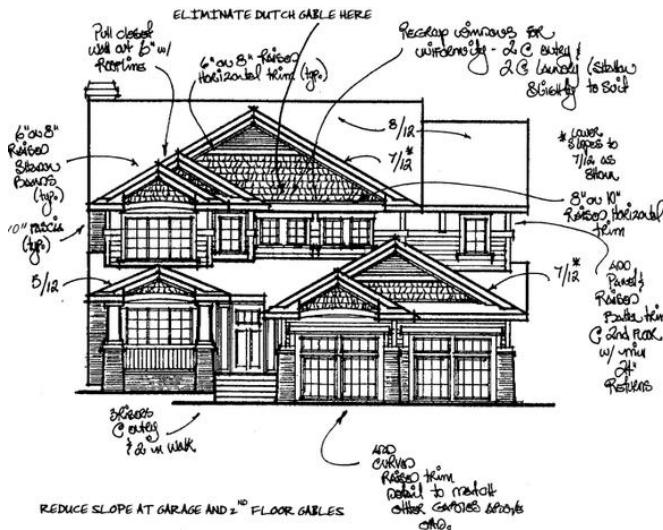
Although it is easy to become attached to a particular house plan, it is important not to ignore the advantages that a site offers. When elements on a building site are considered, the end result is a house that works in its surroundings, and surroundings that compliment the house.

already selected their dream house plan before finding an appropriate location. If this is the case, it then becomes important to consider the above factors when

## **Architectural Controls**

When building in a new area, developers may employ architectural controls to protect the theme and integrity of a neighbourhood. A third party design review firm is hired to provide guidance and feedback to all proposed designs. This architectural control body supplies a list of requirements and approved design themes that are allowed in that neighbourhood. The purpose of these guidelines is to ensure both architectural integrity of the neighbourhood and to prevent repetition of colors and design proximity. Although sometimes difficult to work with, they do protect existing homeowners from unconventional and unattractive dwellings from being constructed nearby. An example of the requirements that may be included are:

- The types of homes that can be built (two-storey, bungalow, etc.)
- The architectural styles that are approved for that neighbourhood.
- The maximum and minimum sizes of the homes to be built.
- The scale and proportion of the designs.
- Relationships with adjacent dwellings.
- Approved materials and colors.
- Technical requirements about construction.



*A classic example of changes an architectural consultant may request during the home design process.*

*The architectural guidelines of this community contribute to the uniformity of its design.*

## Designing For The Market

It is imperative to consider the market in which your future home will be built. Although every effort should be made to differentiate your home from the rest in your area, careful consideration should be made to ensure that its value and attractiveness on the resale market will remain high. Even if you never plan on ever leaving the home, we still recommend keeping these ideas in mind; the future is very unpredictable.

Try to ensure that design elements are consistent with what the market would want on the resale side. If very

*It's hard to imagine that someone thought this was a good idea.*

unique options are chosen, expect objections from potential buyers in the future. Be careful while incorporating overly personal things like Jacuzzi tubs and extravagant finishes; if a future buyer does not require them, it may be difficult for them to justify the extra expense. A client will pay the extra costs associated with an unusual design element, but the costs may not always be recovered when selling the house. By selecting upgrades which are sought after by most buyers, such as granite countertops, low-E windows, and hardwood floors, the value of a house will increase.

Whatever design you choose, there should be at least one bath tub in the house, preferably located above grade. When building in a sub-division, avoid being the largest, most expensive home on the street. Such homes should be built in an appropriate, upper scale neighbourhood, where buyers will accept the full value of the home. On the flip side, it is

equally as important to avoid being the smallest, least expensive home on the street; market perceptions typically go against them. By hiring a design professional who is up to date with recent market trends and materials, it is easy to ensure that the finished home will compliment the neighbourhood.



## **Designing For The Future**

The future is impossible to predict. However, it is important to think about what possible changes may be presented to you and your family in the coming years. Consideration should be paid to the future uses of the home that is being designed. By contemplating these factors, a house is more likely to suit a client's needs for a longer period of time, and also increase its attractiveness on the resale market. A few things to think about are:

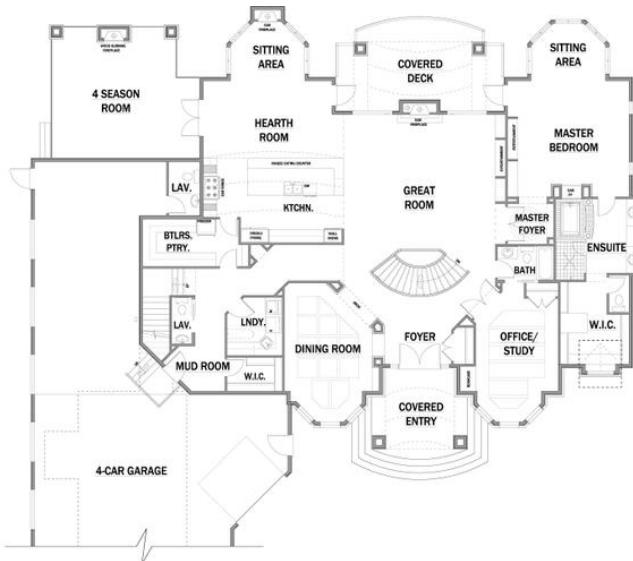
- Is the home design you are looking at able to grow with you if your situation changes?
- What if the kids move out; do you have too much space?
- What if the grandparents move in; do you have enough space?
- What if a person is no longer able to climb stairs?
- Are more children on the way?
- If energy prices or interest rates go up, will the home become unsustainable in its current form?
- What will the future present in forms of technology? Is your home wired to accept it?
- Add closets in spaces like offices and dens, in case the room needs to be converted into a bedroom. If not required immediately, the extra space can be utilized as storage.

- If a room has the possibility of being converted into a bedroom, ensure there is a bathroom nearby with a tub or shower.



*Technology evolves at such a rapid pace, it may be worth consulting a home automation specialist to ensure the wiring in your home will be adequate in the future.*

*The architect you choose should be your best resource to ensure the house you design will be flexible if your needs change.*



*(The Shetland bungalow 3963 sqft. on  
[www.bossdesign.ca](http://www.bossdesign.ca))*

*While designing this home, Boss Design included items to ensure this plan would work for occupants in the future.*

*They include:*

- *Adding a closet into the office, in case it needs to become a bedroom*
- *Direct access from the office into a full bathroom*
- *Main floor laundry*
- *A comprehensive home automation system*
- *Geothermal heating system*



(The Musselburgh bungalow 1834 sqft. on  
[www.bossdesign.ca](http://www.bossdesign.ca))

*This design included many of the same features as the bungalow above. Additionally, we widened all of the doors to be barrier free (wheel chair accessible), lowered the home into the ground (less steps into the home from outside), and added extra space into the garage for a wheelchair ramp if necessary.*

## **City And State/Provincial Guidelines**

An entire book could easily be written on this subject alone. With building codes varying widely between municipalities, the best advice is to obtain competent help. All homes are designed within typical building standards; however, a good architect or designer will know the building regulations appropriate for their area.

Stock plans, which can be purchased from publications and the internet, were typically designed for the area the house was first constructed in. Therefore, prior to purchasing a stock home plan, a qualified architect or designer should carefully review the design before submitting it for permits. A chosen plan may not properly fit on the building site, and will require modification to the design. In other instances, it may be necessary for the plans to be re-drawn because of the climate considerations in your area. Frequently, foundation designs and construction details may need to be altered to reflect the construction practices specific to each region.

By simply having a qualified professional review the drawings, a great deal of time and money will be saved during the permitting and construction processes.



*The importance of the building code is magnified in high density developments, as it also acts in protecting neighbours from a fire in an adjacent dwelling.*

## Selecting A Designer

Designing your dream home is a very personal process. Finding the right designer, who understands and accommodates your wants and needs in a home, is of the utmost importance. When selecting a designer, experience should be their greatest asset. A designer with a great deal of experience, both with the style and size of home you are looking for, will be best suited for you & your family.



*Industry standard 2-Dimensional exterior elevations of a home don't show the complete picture. This home only looks to have a small two car garage.*



*A 3-Dimensional line drawing clearly shows the full size 4 car garage and its relationship to the house.*

However, finding a reputable designer with sufficient experience can be a difficult task. One piece of advice is to phone reputable builders in the area you are looking to build and ask who they deal with. Builders will have worked with various designers throughout their career until they have found someone they are comfortable with.



*Adding colors and textures to the 3-D drawing creates a photo realistic presentation of exactly how the home will look when constructed. (The Prestwick bungalow 3854 sqft. on [www.bossdesign.ca](http://www.bossdesign.ca))*

When you find a designer you are interested in working with, ask for examples of past work they have completed. Also, testimonials from previous clients are a great insight into how the service was during and after the design process.

It's normal for clients, while designing their home, to have difficulty viewing and comprehending technical blueprints of their home. A designer who has the ability to render your plans in 3-dimensions and provide intricate explanations of the smallest of details, will be a great asset. They should help you gain a good understanding for what your home will really look like inside and out before construction even starts. *Renderings and technology involved in the design process will be discussed in a later chapter.*

It's also critical to hire a designer that has previous construction experience. Working closely with trades and suppliers will have offered them invaluable experience in the practical construction of your home. There is more to designing a house than laying out the walls and the doors. Every trade and supplier requires unique information to ensure your home is constructed correctly. Not all designers are created equal. In some cases, designers may be unwilling or unable to make certain changes to the design of your home. If this ends up being the case, you are working for the designer and not the other way around. Therefore, ensure that your designer is capable of offering the competent feedback needed to design your home correctly.

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## **Technology And The Drafting & Design Process**



*The use of technology allows us to make significant changes to a design quickly and accurately.*



*This version of the model can be rendered with multiple different textures and finishes.*

Investments in technology have made Boss Design Ltd. one of the industry leaders in 3-Dimensional imaging and CAD drafting (Computer Aided Design). For many of our clients, the 3-dimensional renderings have been an invaluable tool during the design process for their home. We have the capability to render your home from any angle, interior and exterior. With an endless array of colors and finishes, you can be sure that our design is exactly what you expected.



*The result is an extremely accurate and high quality digital rendering complete with landscaping. (The Locharron bungalow 3854 sqft. on [www.bossdesign.ca](http://www.bossdesign.ca))*

The value of these renderings cannot be overstated. Have you ever spoken with someone who just moved into their brand new home? Did they ever mention "we didn't think it was going to look this way" or "if we would have known, we could have changed it". We hear these horror stories every day. And

the worst part is, a small investment during the design stage may have avoided this altogether.

Digital renderings provide a visual media in which clients and designers can easily communicate. The goal of Boss Design Ltd. is to take advantage of the technology and use our experience to ensure clients get exactly what they want in a home design. It also allows us and our clients to express creativity during the design process. Changes can be made to a plan quickly, and new concepts and ideas can be fully explored. We rely strongly on CAD technology to provide our clients with the highest quality design process in the industry.

## **The Design Phase:**

Every client has a unique set of design requirements and determining these requirements is the first step we take. Many individuals have a general idea of what they are looking for in a home, whether it be a sketch, floor plan, or a few pictures of what they would like their home to look and feel like. For others, visiting us is the first step.

It is important to gather as much information as possible about the project before beginning. Sometimes, it may even be necessary to visit the proposed building site. With the information provided by the client, along with our professional judgment, the layout of the home will begin to take shape. With careful consideration of every customers individual needs, and other factors such as the building site, exposure to the sun, wind direction, and ease of construction; a series of floor plans and a front elevation can then be created.

At this stage, the design will then be reviewed by both parties. As the plan is reviewed, new insights and concepts can develop; the design will be re-worked until it is a perfect fit for the individual and their family. If everyone is satisfied with the design, it is then time to move on to the next step, which is creating the working drawings.

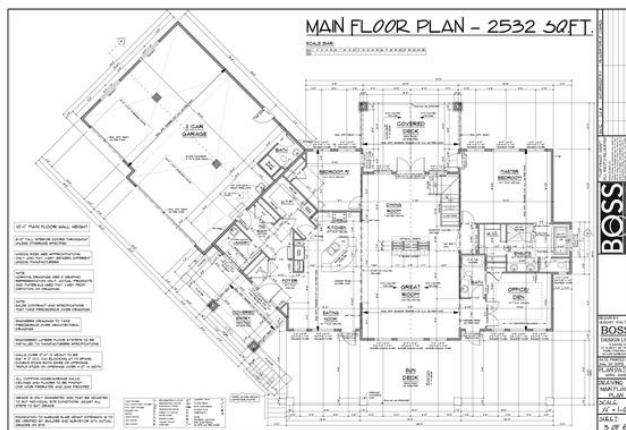


### **The Drafting Service:**

Whether a plan is already selected, or we complete a conceptual design for the customer, our drafting service will provide the drawings needed to get permits and construct the home (working drawings). A typical completed set of working drawings will consist of 5-10 sheets of the following:

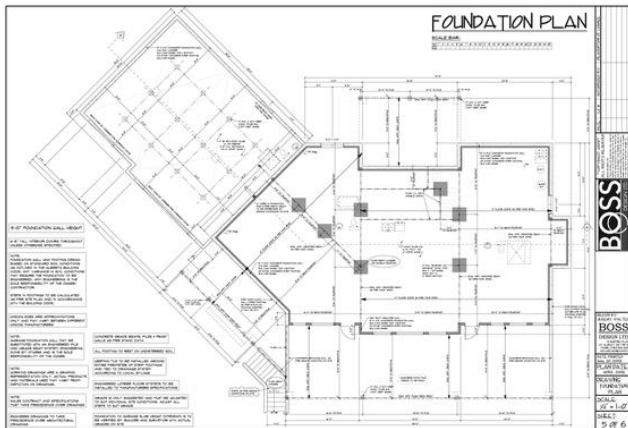


**Exterior Elevations** - E elevations displaying all four sides of the home will be produced. Such details as exterior finishes, window and door details, lot grading, and deck locations, will all be clearly depicted. Additional elevations and details may be required on a per plan basis.



**Floor Plans** - The conceptual plans which were part of the earlier phase, now get all of the final details added to them.

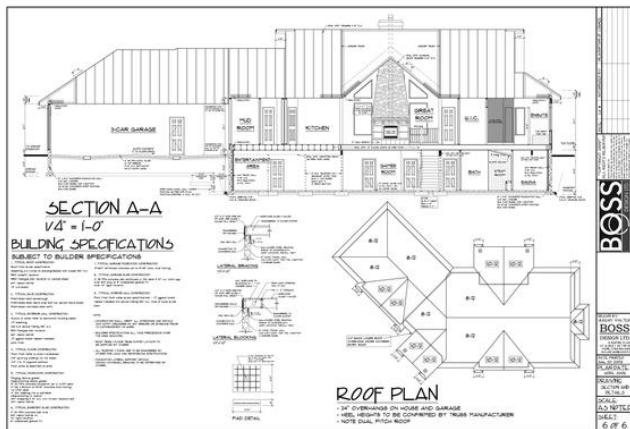
The floor plans will go through a comprehensive structural analysis, with any unusual conditions being specifically noted or referred on to a structural engineer for further analysis.



**Foundation Plan** - This drawing will be produced in addition to any basement development plans. This plan specifically notes all foundation walls, beam locations, telepost pads, plumbing rough-ins, and foundation steps, in one simple and easy to read drawing.

The locations of all elements such as windows, doors, walls, cabinetry, ceiling details, and staircases, will be precisely determined. Interior elevation details of arches and fireplaces may be produced on a per plan basis, or at the discretion of our client.

**Cross Sections** - These drawings are intended to show the specific heights and construction of walls, foundations, floors, and roofs. Multiple sections may be required to fully illustrate the construction of the home.



**Roof Plan** - For complex roof designs, an especially well laid out roof plan will address all roof pitches, overhang depths, fascia sizes, and drainage solutions for any valleys in the roof layout.

**Building Specifications** - The specifications are a comprehensive list of all the various materials and standards to be used in the homes construction. Clients can request specific items in these notes, or choose a standard set of construction specifications.



**Lighting and Electrical Plans** - These optional plans show locations of all the lights, switches, and outlets, for the interior and exterior of the home.

Learn more about selecting a designer on our website at <http://bossdesign.ca/design.asp>.

## Selecting A Builder

Choosing the right builder to construct your home is as important as selecting the correct home design. Construction of a home is a lengthy process, often taking up to a year or more to complete. Satisfaction with the final product depends on selecting a builder who you feel comfortable with, and who has the qualifications and experience to get the job done right, and on budget.

There are thousands of builders to choose from in North America, with their own unique specialization and market focus. Regardless of where you plan to build, there should be a number of builders to select from. Research the builders in your area through various methods such as the internet, friends and family, home builders associations, new home warranty programs, and especially, the builders former clients. This should provide you with a clear understanding of who they are, the quality of the house they build, and the after-sale service that they offer.



*Quality home builders pride themselves on the cleanliness of their building sites.*

The construction of a home is a complex process. A builder will combine the expertise of up to 40 different skilled trades, and numerous product suppliers. While constructing your home, careful planning must ensure that the home meets or exceeds the context of the building code, development permits, and inspections. When sitting down with a builder for the first time, ask a lot of questions. The following is a list of common questions to ask:

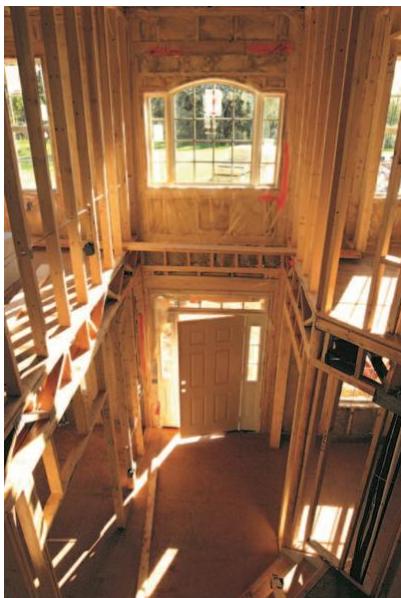
- How long has the company been in business?
- How are the builders fees calculated?
- How many homes do you build a year?
- Is building homes your full time profession?
- What type and size of home do you typically build?
- What is your after-sales service policy?
- How would a typical service issue be resolved?
- What is the payment schedule during the build?
- Can you provide a list of your former clients to check your references?
- Are the same trades who built the show home going to be building my home?
- Who are the trades that will be working on my home?
- Are they affiliated with a new home warranty program?

When selecting a builder, choose the one you feel most comfortable with. A builder who is reputable, reliable and an effective communicator will often be a safe choice. The builder should view the satisfaction of the client as the main priority if issues arise or changes need to occur during the build.

A good builder will never make promises he cannot deliver.

Completion dates, final pricing and payment schedules should always be put in writing. Builders warranty and after-sale service programs should be clearly explained and noted in the contract to build the home. These programs can range in length and complexity, and should be included into the cost of the construction. A reputable builder will have an equally reputable warranty and service program. The city/county planning and engineering department may have information regarding the reputation of the builder, as they issue the building permits and do all of the inspections.

The costs of construction will vary between builders. Every builder charges a little differently and includes different things in their final price. Some will include large allowances for items such as finishing, flooring, lighting, appliances, cabinetry, landscaping, etc. If the final prices are above or below the allowances for an item, the clients will pay the difference or have it credited back to them. Other builders won't provide a build price to a potential client until they have gone through the process of selecting all of the items they would like in their home. The builder will add all of these items together and add a percentage for their management fee and the final price is determined.



*Builders may have policies regarding site visitation to protect people's safety.*

Be apprehensive of a builder with dramatically low prices when compared with their competition. They might not be honest about the costs involved to build the house, or their quality may be suspect. They also may require more money during the process of the build if they have understated the costs initially. However, don't choose the builder with the

highest price unless their reputation with previous customers is impeccable.

## **What To Design**

*This Victorian two storey incorporates attractive roof lines to bring the apparent height of the structure down.*

**Two Storey** - Two stories are most popular among young families with children, who are looking for a lot of living space at minimal cost. It is less expensive to build upwards than to increase the size of the main floor, therefore two storey homes tend to be less expensive per developed square foot than bungalows. For example, a 2000 sq.ft. bungalow would cost more than a two storey with floors of 1000 sq.ft. each. The general design of a two storey allows the children's bedrooms to be placed in close proximity to the master bedroom on the second floor. Another reason that young parents love two stories, is that the children's toys and clutter are easier to contain upstairs, away from the primary entertaining spaces of the main floor. Depending on the climate, two stories may be constructed with un-developed basements. This allows opportunity for development of additional bedrooms or living spaces in the future. Two stories are very popular and abundant in neighbourhoods with more affordable price ranges.

Learn more about two storey designs on our website at [www.bossdesign.ca/two\\_storey.asp](http://www.bossdesign.ca/two_storey.asp).

*Bungalows are more popular in areas where the lots are wider and the living spaces can be spread out.*

**Bungalow** - Bungalows are most popular with empty nesters and retirees. Usually these homeowners don't have the need for additional bedrooms and would like to avoid climbing stairs as much as possible. These single storey homes often feature a den/office complete with a closet in it, that can be easily converted to a bedroom if necessary. Typically, bungalows are more spread out. They are able to be designed with a more open concept, because load bearing walls for a second floor are not required. The lack of a second floor also introduces opportunity for vaulted and/or raised ceilings in the common areas. Bungalows are often found in more expensive areas, where lot sizes are larger and can accommodate a larger main floor footprint. Depending on the climate, bungalows may be constructed with developed basements to add additional living space.

Learn more about bungalows on our website at [www.bossdesign.ca/bungalows.asp](http://www.bossdesign.ca/bungalows.asp).



*In this example, the bedrooms are incorporated into a raised, two storey center section. Roof lines are blended on the sides to maintain a lower overall appearance.*

**1 ½ Storey** - 1 ½ stories are combinations of both bungalows and two stories. Built with a two storey section over only half of the main floor, these types of designs can offer many advantages, while keeping large sections of the main floor open for entertaining spaces. The transition between the upper level (which is usually comprised of all the bedrooms) and the main floor, often results in a dramatic vaulted ceiling. Depending on the climate, 1 ½ stories may be finished with developed basements, providing additional living space in the house.

**Bi-Level** - Bi-level plans feature front doors that open onto a dedicated landing, located halfway between the upper and lower floors. Popularly built in the 1970's and 1980's, the size of bi-levels generally falls between 1000-1500 sq.ft., although some designs are larger and have the feel of a bungalow. Generally identified by their partially sunken foundation, basements can usually be constructed with larger windows that make the space more appealing. Due to a lack of popularity, bi-levels are less commonly built in comparison to other styles.



*The entrance for this bi-level is halfway between the upper and lower floors.*



*Depending on the existing slope of the land, a bi-level may be presented as the best home style option.*

**Walkout Option** - If the slope of the land on the chosen building site is great enough, a walkout basement option may be possible. These are a popular option, because they provide homeowners with attractive living space at ground level under the main floor. Depending on the specific design chosen, it may allow for a 2 or 3 storey appearance on the walkout side.



*A digitally rendered view by Boss Design Ltd., showcases the back of the home featuring a walkout basement.*

Not only is a walkout basement an attractive feature, it also adds a great deal of value to a home for a modest amount of expenditure.



*The attractive ground level living spaces of this walkout basement will allow the occupants to interact with the lake, while also entertaining large gatherings on the lawn.*

Furthermore, the presence of a walkout provides a great opportunity for spaces like games rooms and wet bars. These rooms will generally serve as entrances from the outdoor patio into the living space inside.

## **Design Styles**

The most common design styles of houses are:

- Colonial/Georgian
- Contemporary
- Craftsman
- French Country
- Prairie
- Tudor
- Victorian

Although there are numerous other styles available, most are just variations on the above designs. A single neighbourhood may often feature an abundance of different styles, whereas other neighbourhoods may have guidelines that only allow one or two styles.

Each client has their own individual tastes with respect to likes and dislikes. Therefore, designers and architects are frequently combining many different styles to achieve a house that the client is happy with. Although it may be common practice, it is important to obtain competent advice when planning to do so.



## **Contemporary Style**

Although contemporary styled houses can share features with numerous other styles, a contemporary styled dwelling is easily recognizable. Contemporary plans are derived from a more modern form of architecture; one often noted for mixing textures and materials. The end result is a house with simple lines that are attractive to the eye, and also cost effective to build. Without a distinct set of design rules, contemporary houses can feature ultra modern design elements or elements that can be very traditional in appearance.

## **Entrances**

Entrances of contemporary houses can vary largely between designs. Fundamentally, glass entrance doors will be flanked by unusually shaped windows or full glass entrance systems. Detailing and ornamentation should be kept to a minimum. Definition of the space is often achieved by massing and difference in planes. Entries are generally recessed, and covered by a roof extension or by a modern hanging canopy.

## **Roof**

Usually the roof will be either a high 10:12 pitch and dominate the façade, or be a low 4:12 pitch and integrate into the house and its surroundings. High pitch roofs will have shallower overhangs of 1'-6" or less, and low pitch roofs will have deeper overhangs of 2'-6" or greater. Flat roofs and sloping roofs are also very common to the contemporary style; such features may be incorporated based on the design of the house, budget considerations, and the neighbourhood.

*A great example of the clean and simple lines of a contemporary style home.*

*Glass surrounds the entrance of this contemporary home.*

## **Exterior Finishing**

A variety of finish materials are suitable to a contemporary styled house, including stucco, acrylic stucco, stone, brick, wood, metal, and siding. Consideration must be given to applying the chosen materials in a simple, geometric, clean, and modern looking way. Cut lines in stucco can effectively be used to create visual breaks.

## Windows

Windows, both in design and placement, are usually the most characteristic feature of a contemporary house. They are usually found in large numbers, with unusual shapes and locations. Tall, over-sized windows, that are grouped together in geometric shapes are common and desired. The placement and location of windows should unite to form a very **asymmetrical**

façade. Window trims are simple and definite, rather than ornamental.

## Colors

Colors and finishes are natural and subtle. Along with bold ornamental detailing, flamboyant colors should be avoided.

*This example utilizes a flat roof as well as an asymmetrical placement of the windows.*

## Craftsman Style

The craftsman style originated during the Arts and Crafts movement, as a backlash against the elaborate Victorian style. Popularity of craftsman houses, which include bungalows and two stories, quickly spread throughout North America. Their sturdy looking structures incorporate clean lines, and are usually finished with natural materials.

## **Entrances**

Partial and full width ***verandas***

2 are a major element of the craftsman style. Verandas often have a gable roof, consistent in pitch and detailing with the main roof, and are typically supported by massive tapered wood columns with stone bases. Entrances are usually recessed with doors that include glass panels and are simple in design.

## **Roof**

Roof slopes range from 5:12 to 8:12, with wide overhangs of 1`-6`` or greater. The roof design is characterized by wide, open gables and the occasional hipped roof. Decorative beams or brackets under the fascia are common details applied to gable ends. Exposed rafter tails or roof dormers present an added feature to the design.

*Craftsman home with a large front veranda and a natural color palette.*

## **Exterior Finishing**

Craftsman style houses are finished in a combination of natural materials. Materials such as plank siding, shakes, and stone are common, and frequently a combination of more than one type is used. The dominant finish selected is separated from other finish materials by wide trim boards. Trims are generally painted or stained. Occasionally, stucco may be

used and will be complimented by stone accents. Chimneys are typically exposed and clad with stone.

## Windows

Windows are usually grouped together in pairs at minimum, typically having a vertical orientation. Grilles may be present in the upper half of the casement or double hung windows, whereas, the lower half is often left plain. Much like the exterior finishing, window surrounds are simple and finished with natural materials, such as wood.

## Colors

Colors suited to the craftsman style include deep earth tones natural to the surroundings. Heavy white trims are used as accents to the prominent exterior colors. Conversely, colors may also be tone on tone with each other.

*Heavy white trims accent the windows, bays, and columns of this craftsman home.*

*This craftsman styled exterior is highlighted by large tapered wood columns with stone bases.*

## French Country Style

The French country style is inspired by both the modest farmhouse designs, as well as the estate manors of the French

countryside. Although this theme has been adapted to suit the North American taste, it still maintains the classic look by combining rustic elegance with an elegant façade. Typically asymmetrically designed, French country houses have varying roof heights and steep pitches. As with other styles, there are many variations to the French country style.

## **Entrances**

Entrances are usually recessed and framed by either a roof or stone arch above. While dressed in lots of architectural detail, entries still maintain a warm and inviting feeling. The front entrance will often be centralized on the elevation, featuring elaborate doors with gentle arches and glass surrounds.

## **Roof**

French country plans feature multiple roof elements set at varying heights. This creates a series of visual focus points throughout the elevations, while combining gables, hips and curved dormers. On average, roof pitches are 9:12 or greater and feature individual roof planes of 12:12 or 14:12. Roof overhangs are shallow, being 1'-6" or smaller, with thick fascias of 10" or greater. Moldings or stone work are installed at the eaves for added definition. It is also characteristic for steep roof pitches to be softened with flared eaves.

*The French country style is emphasized by varying the roof elements, heavy stone detailing and large chimney chases.*

*The front door of this home is recessed behind a large covered front entry.*

## Exterior finishing

French country homes present elegant façades often accented with stone or brick. Although stucco is the primary finish material, it is commonly dominated by heavy stone or brick detailing. Cobble field and limestone are best suited to this style. Decorative moldings and stone details are an effective way of adding further definition. Chimneys are usually large and detailed with stone or brick.

## Windows

Typical casement windows have a vertical orientation and full grilles. Arched and round windows are very common and set at varying heights, often fluctuating with the roof design above it. Arched shutters are used as highlights on certain windows. ***Bay*** and ***bow windows***,

<sup>3</sup> with copper or metal roofs, are attractive features and should be strongly considered.

## Colors

Colors are generally characterized by a European influence. Common stucco colors are white, cream, and grey. Stone and brick colors include many natural and artificial tones, with contrasting trim colors.

*This home features the steep roof pitches and flared eaves of the French country style.*

## **Colonial/Georgian Style**

The Colonial and Georgian styles are closely related to each other. Characterized by a stately and simplistic rectangular appearance, these houses mimic the large, elaborate estate homes built in Europe for many years. This style incorporates a very formal blend of symmetry and simplicity, with temple-like entrances.

### **Entrances**

Entrances are often accentuated with tall, round columns. Crowning the pillars is typically a gable entry porch or decorative pediment. Entry doors are centrally located and usually symmetrical with the façade. Although the door design is plain with raised panels, it is colorfully painted and often flanked with sidelights.

### **Roof**

Roof slopes are moderate, generally being 6:12; however, pitch can be adjusted to accommodate ***dormers*** 4 if they are present. To reinforce the styling, overhangs are often 1'-6" deep or less, and complimented by a shallow fascia depth of 6" or less. Decorative moldings are typically installed at the eave line for emphasis. These plans usually have one gabled roof, from front to back, which stretches the entire length of the home.

*A stately looking colonial home featuring the symmetry and dormers common to this style.*

## **Windows**

Windows are symmetrical, equally sized, and spaced in a uniform fashion across the front of the home. Glazing types used are commonly single or double hung, with only the top half being grilles. Decorative shutters complete the window on either side.

## **Exterior Finishing**

A Colonial/Georgian house is typically clad in brick or horizontal plank siding. Detailing above and below the windows should be consistent with the dominant finish chosen. Decorative moldings, gable trims, and dormers also help to reinforce the styling. Chimneys are clad in the same material as the dominant finish.

## **Colors**

Colors suited to the Colonial/Georgian style are light neutrals, like white or cream for siding, and bold colors, such as red for the brick cladding. Trim and window colors usually match the chosen siding or brick color. It is also not uncommon to incorporate dark accent colors such as forest green, navy blue, or black.

*The colonial's classic look with double hung windows including grills only in the top section and decorative wood shutters.*

*Symmetrically placed, equally sized windows are a major highlight of the colonial style.*

## **Prairie Style**

Inspired by the flat, straight lines of the horizon on the prairie, a prairie style house design often appears deliberate and free flowing. Its basic, square design creates a strong horizontal presentation. With no curved details on the exterior, it is merely right angle walls, complimented by boxed out details of varying heights and depths that make up the unique appearance of these houses.

## **Entrances**

Emphasized by massive porch supports, prairie style houses generally have square porches and recessed entries. The entry door is large, yet simple, and is often complete with sidelights.

## **Roof**

Roof slopes tend to be low on prairie style houses, having a pitch of 5:12 or less. However, roof overhangs are generally deeper, being 2'-6" or greater; with the deep overhang shielding the interior from direct sunlight. The roof is characterized by broad, simple hips or low, wide gables.

Rounding out the appearance is, at minimum, a 10" deep fascia, which accentuates the horizontal lines of the style.

*Arguably one of the finest examples of prairie style architecture, the Robie House by architect Frank Lloyd Wright.*

*This example includes all of the hallmarks of the prairie style, such as low pitch roofs and deep overhangs.*

## **Exterior Finishing**

Smooth stucco or clapboard siding are typical finishes for prairie style houses. The exterior surface is complemented by smooth brick or shallow ledge stone massing under windows and on the substantial porch supports. Chimneys often have little to no detailing, remaining plain and rectangular.

## **Windows**

Windows are generally large, casement, and consistent in shape. In some instances, ***transoms*** 5 and/or leaded glass accents are also present. Due to the omission of grille patterns within the windows, the glazing remains unobstructed.

## **Colors**

Colors suited to the prairie style are mild to dark earth tones, with monochromatic or darker contrasting trims.



*Another famous example of the prairie style is the Darwin Martin House by architect Frank Lloyd Wright.*

## **Victorian Style**

A Victorian style of house is actually a combination of several different styles, such as Italian, Queen Anne, and Gothic. Featuring dormers, steep roof pitches, and striking turrets with wrap around porches, Victorian plans showcase asymmetrical, complicated shapes with lavish decoration. It remains a highly recognizable and sought after style, and can be found in both urban and rural settings. In most cases, Victorian houses are two stories.

## **Entrance**

Victorian entrances are typically covered by sloping roofs that extend over large, wrap around verandas. Typically, the entrance doors are framed by a small gable on the veranda roof that is supported by narrow wood pillars. Stone or brick, extending up from the deck, can sometimes be encountered on the pillar bases. Entrance doors are usually wooden, half glass doors. If the design permits, doors are completed with a transom above and flanked with sidelights.

## **Roof**

Victorian houses nearly always feature a large, wrap around, covered veranda on one or two sides of the dwelling. The veranda often intersects a *turret*,

<sup>6</sup> which is another classic Victorian feature. Topping the turret is a dramatic, steep roof with a pitch of 10:12 or higher. In contrast, the veranda roof has a fairly low pitch of 4:12, before terminating at the second storey wall above. A front facing gable on the front façade, left or right of the door, is also a recognizable feature of the Victorian style.

*This Victorian exhibits a very diverse color palate of contrasting colors.*

## **Exterior Finishing**

Victorian houses are almost always finished in horizontal siding; vinyl, wood and plank are some examples. Brick and stone are often used as bases for posts or to emphasize certain

areas, including chimneys. However, full brick façades are also attractive if the budget permits. Ornamental spindles, brackets, lattice, and various other forms of trim work adorn this type of house. However, not all examples of this style are heavily decorated; some feature a more moderate appearance.

## Windows

Windows are nearly always double hung windows, with grilling in both the top and bottom. Occasionally, casement windows are used, but must maintain the overall look of the design. Curved top windows are commonly used to highlight certain areas of the elevation. Window trims can be either elaborate or simple, depending on the degree of ornamentation on the façade.

## Colors

Victorian houses have been built with varying color palates. Some use very bright colors, with contrasting trim work and natural stone or brick. Others prefer light colors for the siding, with very subtle forms of contrast for the trim and ornamentation.

*This example illustrates a lighter color palate with subtle contrasting colors.*

*Full brick façades look fantastic and are mostly maintenance free.*



## **Tudor Style**

Tudor style houses mimic the medieval cottages and European country homes of the middle ages, when large buildings were constructed in a post and beam method. They are unmistakable due to their unique architectural detailing and design. Intricate and steep roofs are incorporated with various forms of gables and dormers. Typically, they are two storey models asymmetrically designed and featuring large, decorative timbering between areas of brick or stucco.

### **Entrances**

Front entrances are generally recessed, with steep, front facing gables and arches over the doors. Gables often feature a dramatic, sweeping fascia line that is tied into the covered entry. Entry doors are usually solid and without glass; color is consistent with the timbering on the façade.

### **Roof**

Tudor style roofs are characterized by prominent *cross gables* [7](#) of varying sizes and heights. Roofs generally consist of one gable which stretches the entire length of the house, which is then intersected by multiple front facing gables. The pitch of the roof is generally steep, 8:12 or greater, with steeper intersecting gables of 12:12 or higher. Due to the steep roof pitches, overhangs are usually a shallow 1'-4" or smaller with standard 6" fascias.

*This Tudor features a recessed front entrance with sleepy pitched front facing gables.*

## **Exterior Finishing**

Most Tudor houses are finished with stucco, accentuated with decorative wood timbering between areas of brick or stone. Stucco should be applied with a smooth or knock down finish. The wood timbering can be applied in many patterns and designs, and is central to the Tudor theme. As an accent material, dark brick is commonly used.

## **Windows**

Windows are casement or double hung with a vertical orientation. ***Ganged***

<sup>8</sup> in multiples, the panes of glass are completed with rectangular or diamond grille patterns. The design for the wood timbering is based upon the horizontal and vertical outline of the windows, which creates a consistent pattern, used throughout the façade.

## **Color**

The color combinations between the exterior finishes are contrasting. Stucco colors are usually light neutrals, like white and cream while brick and timbering colors are either dark brown or grey. This gives an almost "black and white" appearance on the front elevation.

*Large decorative timbering are interrupted by areas of brick.*

*This home features the classic Tudor color palate of light coloured stucco, with dark wood timbering and dark brown brick.*

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1. Asymmetrical [adjective]: Unsymmetrical; lacking symmetry; either side of a central line not being identical.

[Back](#)

2. Veranda [noun]: A large, open porch, usually extending across the front of a house, typically roofed and enclosed by railing.

[Back](#)

3. Bay/Bow Window [noun]: A window projecting from an exterior wall and forming an alcove in a room.

[Back](#)

4. Dormer [noun]: Also referred to as a *Dormer window*. A window within a three sided projection, built out from a sloping roof.

[Back](#)

5. Transom [noun]: A fixed window over a door or another window.

[Back](#)

6. Turret [noun]: A small octagonal shaped projection from the side or wall of a building.

Back

7. Cross Gable [noun]: Two gables which intersect at 90 degrees to each other.

Back

8. Ganged [noun]: Arranged or assembled into a group, as for simultaneous appearance.

Back

## **Fireplaces**

*Fireplaces are often finished with natural stone and brick in traditional styled homes.*

One of the most unique and aesthetically pleasing elements of the home, fireplaces can be incorporated in many ways and can add tremendous value to any space they are placed in. Some clients know early on in the process exactly the type of fireplace they want. For others, this section will give you the information you need to make your decision.

*The wall space above the mantle of the fireplace is a great location for a piece of art or a flat screen television.*

Fireplaces are available in a variety of unique shapes and sizes. The requirements of the space and the theme of the home will determine the type of fireplace to use and its location in the home. The variety of different fireplaces on the market speaks to their versatility. Many client's choices will be determined by the character and aesthetics of the fireplace, whereas other people will choose a fireplace that offers efficiency and the convenience of being low maintenance.

Most fireplaces will fall within two main categories: gas fueled or wood fueled. Of course, there are some variations and combinations with each type. Gas fireplaces provide efficiency, convenience and low maintenance at a reasonable

cost. As a result, their popularity has exploded in the recent decades. Among new communities, an individual is sometimes hard-pressed to find a home constructed without at least one gas fireplace.

Conversely, many people prefer the beauty and character of a natural wood burning fireplace; the smell and sound of a wood burning fireplace will instantly make them feel more relaxed and comfortable.

Fireplaces are most commonly found in living/great rooms, but are also popular in other rooms, such as bedrooms, dining rooms, dens and basements. The specific location of the fireplace in these rooms should be carefully considered, as they often guide the placement for furniture in that room.

These days, fireplaces won't only be found nestled up against a wall or in a corner; two sided and three sided versions have become more common and are found throughout the home in various locations. While still allowing space to walk around on either side, these fireplaces are typically placed in between two rooms to visually separate them. Other than being aesthetic, another advantage is the ability to heat more than one room at a time with the same fireplace. Furthermore, it is not uncommon to see two sided fireplaces located on an exterior wall, with functionality to the inside and the outside of a house.

*This is an example of a two-way fireplace with a stone hearth.*

*Contemporary style fireplaces are shorter and wider, with an emphasis on the horizontal lines.*

With so many versions of fireplaces available to today's consumer, it is easy to find the right product and place it in the right location in a house. A fireplace gives a room flexibility while also adding eye-catching detail to the space. Individual lifestyle, paired with the size and shape of a room, will determine which fireplace will serve each client and their family the best.

## Wall Heights

This is one section where a bit of our personal bias is going to be displayed. If it was only up to us, which it rarely is, we would build homes with the highest wall heights possible in almost every room. Of course, there are other things to consider when determining which wall height to use.

The largest single factor which determines wall height is cost. In communities with entry level homes, it is common to see the wall heights limited to 8' with the occasional homeowner selecting an upgrade option to 9'. Often, that upgrade will come with a curiously high price tag; however, when considering everything that happens when the wall heights are raised above a standard 8', the reason becomes clear. A taller wall means that the home will require more drywall to finish, more seams to tape, more insulation, more paint, taller cabinets, taller windows, and taller studs. Additionally, a higher wall might require taller and wider doors to maintain proper proportions, or a larger sized furnace to make up the additional volume of air.

Another important factor when considering an increase in wall height, is the stairs. Every 1' of additional wall height between floors will translate into 2 more steps on the staircase. In most home designs, this won't be much of an issue and in our opinion, the increase of wall height is worth it.

*This home has utilized varying ceiling heights to create definition between the rooms.*

*Tall ceilings in this home contributed to its grand appearance from the front foyer.*

After discussing the previous points, it is important to understand the various benefits of taller ceilings. Firstly, almost nothing is more impressive when walking into a home, than to see large rooms with large windows and high ceilings. Since there is nothing technically superior in a house with higher ceilings, it is really only the perception that people get when they enter the room, when compared to an identical home with lower ceilings. There is something about ceiling heights above the 10' level that promote the feeling of luxury, comfort, and opportunity. This may be because most homes with ceilings 10' or higher have been designed and built to a level of luxury that is not commonly seen in high density single family housing.

It is possible to raise ceilings in only select areas of the home. For example, raising the ceilings in the great room, kitchen, dining room, and front foyer, will create the desired effect without the expense of raising the ceilings throughout the entire home. Often, this will give clients the best of both worlds; nice, high ceilings where they need it, and a lower, more cozy ceiling in bedrooms, bathrooms, and other non central rooms.

We described our bias towards high ceilings in the opening of this section. This is primarily because many of the homes that we design are built as estate homes. Rarely *With a taller wall height, intricate ceiling details can be built down without negatively*

will we design a home without a 10'-12' ceiling at least somewhere, even in two storey

*affecting the height of the space.*

homes. Higher ceilings allow home designers to be a little more creative with the details of the space. However, as a general rule of thumb, the ceiling height chosen should not be taller than the room is wide. Ceilings that are too tall can give the impression of being inside an elevator shaft.

Every home would benefit from a little more consideration paid to the ceiling heights. Make no mistake, if you want to increase the ceiling heights in part, or all of your home, it doesn't have to be an estate home.

## **Linen Closets / Storage**

*Sometimes all it takes is a small room with a lot of shelving.*

Adequate storage is essential to the long term livability of any house. Every homeowner's storage needs are different and can vary widely. For example, a house constructed without a garage will require adequate storage incorporated into the home. Conversely, when a garage is present, less storage may be needed inside the home. Simply sectioning off a portion of the basement, or a corner of the main floor, will often suffice for most storage needs.

*Cabinet designers have access to some wonderful products to solve all of your storage needs.*

Items that will require some special consideration, are the storage of items such as towels, linens, cleaning supplies, and food staples. These items should be stored very close to where they will be used on a regular basis. For instance, who would want to walk halfway through a home just to get a single towel to have a shower? All that is usually required is a bit of thought to where storage for these items should be located. Towels and toiletries should likely be stored in or near the bathroom in which they will be used. Food should ideally be stored near the kitchen, if not in a pantry or large cabinet within the kitchen itself.

This is clearly not a comprehensive list; it's merely suggestions of normal things that people will be using in their daily living. However, it is intended to get a client thinking about how they live in their home. By putting some thought into the things that individuals use frequently, it is easy to determine whether or not a house design has space allocated for them.

## **Floor Plan Traffic Flow**

When designing a house, traffic patterns and directing traffic flow are very important considerations. Utilizing open spaces, hallways, and room relationships can greatly improve flow and create privacy. It is essential to consider the following principles during the design process:

Houses shall be designed with a minimum of 3 entrances; front entrance (foyer), rear (to back yard), as well as another from the garage (mudroom). Multiple entrances/exits reduce the distance a person will have travel to exit the dwelling. This is of particular concern in emergency situations.

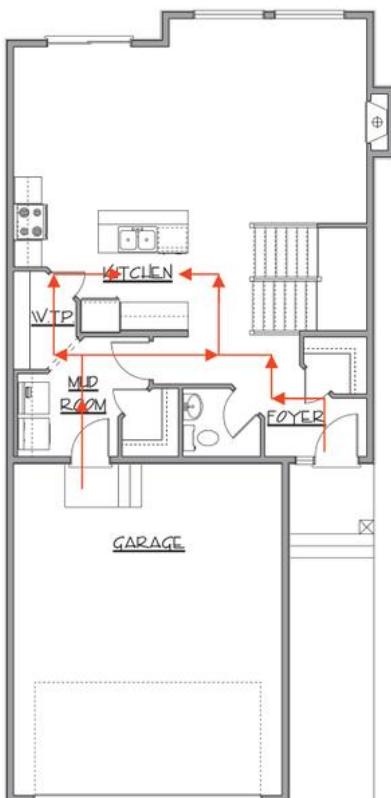
*A clearly defined path from the door is helpful when carrying your groceries. Imagine having to walk through the entire main floor to get to the kitchen.*

Generally, front entrances should be central to the home and appealing from both the outside and inside. The foyer will typically open up into the great room or family room, and be very close to hallways, allowing for access to other rooms of the home. From a homeowner's perspective, front entrances have relatively limited use, although they are often used by guests.

Families usually use the garage entrance as their main entrance. Most trips to and from the home require vehicle use, so the entry and exit will be through the garage. There has been a trend in the last few years to put more space and design time into the garage entrances (mud rooms) to better serve the occupants of the home. Large closets or storage lockers are very common in these areas, as well as moisture resistant floor finishes.

Normally there should be a clearly defined path from each entrance through the home to every room. People should be able to move between areas without

being forced through one room to get to another. The exceptions to this rule are ensuites and walk in closets in bedrooms. Ideally, the layout should steer away from situations where a person would have to walk through the dining room to get to the kitchen. Another example would be travelling through the great room to get to the kitchen or



*This illustrates on a smaller scale how traffic flow can be easily managed through the home.*

master bedroom. There should be a clearly defined pathway between rooms via a hallway or with the aid of posts and headers.

*In this home, hallway space was kept to a minimum by locating the doors to each room in close proximity in a central hallway space.*

Hallway space within homes should always be designed to a minimum. Hallways provide proper traffic flow between locations, however, more hallway space equals more wasted space. When a house is designed to a predefined size, oversized hallways mean that the other rooms will have to be smaller. However, opening up spaces too much and eliminating hallways all together can also be a misstep.

Without hallways, individual spaces can become too large and awkwardly shaped, making furniture placement difficult. Privacy for certain rooms, like bedrooms and bathrooms, is essential. Generally, such rooms should be located through a hallway or gallery from the main body of the house.

All doors from bedrooms and bathrooms should open into a central circulating space. Nothing feels more awkward on a floor plan than having an entrance for a bedroom or bathroom directly off a main room. The rooms which require the greatest amount of privacy should be located off a small hallway or gallery space. Only in extreme cases where space is very limited, should this rule be broken.



*The traffic flow of this home is well managed from the front entrance and mudroom, through the central gallery of the home. From the master bedroom there is a clearly defined path to most space on the main floor. (Augusta Bungalow 2947 sqft. on [www.bossdesign.ca](http://www.bossdesign.ca))*

## **Basement Development**

In climates where basements are constructed, development of that area may add a great degree of value and functionality to the house design. The word "development" implies the creation of additional rooms and entertaining spaces by adding interior walls to the wide open undeveloped basement layout. The possibilities for the development may include additional bedrooms for older children, additional bathrooms, games rooms, theatre rooms, fitness rooms, family rooms or bar areas.

Teenagers as well as pre-teens often seek privacy from their parents, at an earlier age than ever before. Additional bedrooms in the basement, complete with a room for entertainment, is a great way to give youngsters their own space and contain clutter away from the main floor. Theatre and fitness room are also very popular on the lower level, as it is easier to contain noise and provide privacy from spaces on the upper floors.

A good tip when locating a theatre room in the basement, is to be conscious of what rooms are above it on the main floor. For example, avoid locating the theatre room right below the master bedroom. If additional bedrooms are not a requirement, then basements can transform into great open spaces for games rooms, entertainment spaces, and bar areas. Even if basement development isn't planned for the immediate future, it is important to ensure that a rough-in for plumbing is added at the time of construction. By having a relative idea of basement layout, a client can ensure that the

rough-in will coincide with room location when the area is developed.



*A simple, yet functional bar in the basement is a terrific place for another refrigerator.*



*Games rooms are a great way to entertain, while keeping noise and mess off of the main level.*

## **Staircases**

One of the most unique elements of the overall home design is the staircase. It signals the gateway between floors in the home and can be one of the strongest architectural elements found in the house. Some people may prefer a grand, eye catching, and prominent staircase. In other instances, a simple and tucked away set of stairs that get the job done may meet a client's needs more accurately. Before discussing the benefits of each, it is important to consider what type of staircase will best suit your lifestyle, your taste, and the reality of your budget.

*An example of fold back (u-shape) staircase with hardwood steps.*

Properly locating a staircase into a home means determining what a client's needs are. Up until a few years ago, it was almost automatically assumed that the staircase must be close to the front foyer, if not a part of it. Integrating a large foyer with a staircase can create an impressive space, often with a spacious raised or vaulted ceiling. Another reason this is a popular place for a staircase is sound transmission. A staircase toward the front of the home usually means it is a generous distance from the main entertaining spaces of the kitchen and great room.

*Curved staircases are often the focus in the foyer of large homes.*

Also, if children are noisily playing on a different floor, the sound has a long way to travel to get back to the living spaces on the main floor. However, there has been a tendency lately to move staircases away from the front foyer, subsequently increasing traffic flow.

Recently, many clients have chosen to move the staircase to a more central location in the home, close to the main living spaces of the kitchen or great room. They appreciate the ability to go up and down between levels, near to where they spend the majority of their time. Furthermore, they are not required to walk all the way to the front door, away from where they spend most of their time, to use the stairs. A carefully detailed staircase can be pleasing to the eye and a tremendous feature off the great room or kitchen.



A point that deserves some discussion is how the location of the stairs will impact the other floors of the home. Given that it is impossible to suggest a general rule for this, the issue should be considered on a per plan basis. The footprint of the home may suggest a central location for the staircase to minimize the hallway space on the second floor. Alternatively, if wide

*L-Shaped staircases are a practical use of space with a landing halfway up.*

of the home.

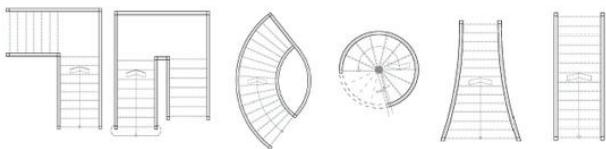
open spaces in the basement are preferred, it might be better to locate the staircase towards an outside edge

*Spiral staircases are often found between upper and lower decks.*

Although these are just a couple examples of what to consider when getting a home designed, what remains important is to choose the location that works best for your family and your lifestyle. Many people, including builders and designers like myself, will offer varying opinions and suggestions of what you *should* do; pointing out positive and negative aspects. However, it has to work for you, and you have to be happy with it.

*Even straight staircases, paired with a nice railing and hardwood steps, can be a very attractive and inexpensive option for your home.*

Lastly, it is helpful to be aware of the different types of staircase designs that may be chosen to be incorporated into a home.



Angled (L-shaped)	Fold Back (U-shaped)	Curved	Spiral	Flared	Straight
Very practical use of space. Landings half way make them easy to climb. Helpful for transporting furniture.	Very practical use of space. Large landings are great for displays. Helpful for transporting furniture.	The most dramatic type of stairs. Beautiful when paired with a nice railing. Good use of space and can be expensive.	Dramatic look but can be hard to climb. Very hard to transport furniture. Popular design. Beautiful touch if the space is available.	Flared sections paired with almost any other type of stair design. Beautiful touch if the space is available.	The most practical use of space. Easy to transport furniture. Not as attractive to the eye, but very cost effective.

On a positive note, every staircase style, when paired with a decorative iron or wood railing, will be attractive. Other options when considering the stair, can include open risers (steps) and open stringers (sides). Many companies specialize in building just stairs, and are able to work with you and your designer to achieve the exact look you want.

In some cases, the determining factor may be how the various options will affect the overall cost. Conversely, your style and imagination may determine your design choice for the staircase, as well as its location in the home.

## Ceiling Styles

Particular rooms in a home will often deserve an extra touch. One of the most effective ways to achieve this is to change the style of the ceiling within the space. There are as many different styles as there are imaginations in the world, therefore, it is the responsibility of the house designer to use their creativity and discretion to make the ceiling transitions comfortable and appealing. Below are a few of the most common options in regards to ceiling styles.

**Vaulted (Cathedral) Ceiling** - Vaulted ceilings are popular with designers, and they create impressive spaces in large areas. They are most common in the larger open spaces of the great room, but can be found in almost any room in the home. These rooms may include, but are not limited to, kitchens, dining rooms, bedrooms, bathrooms, and front entrances. Carefully placed windows and exposed beams are often combined with vaulted ceilings. This not only opens up the space, but also allows for a sense of personal scale and comfort. Vaulted ceilings can be created at various different pitches, from steep to subtle, in order to suit any design requirements.

*This combination of vaulted ceiling and exposed wood beams creates a warm and inviting experience for the occupants of the space.*



*The edge of the vaulted ceiling in this plan starts after the front entry. By containing the vault within this great room, definition is created within the two spaces and the front entrance does not become over exposed.*



*The coffered ceiling in this dining room is painted to match the wainscoting on the wall and the trim around the doors and windows. Note how the ceiling detail in the dining room defines it as a different space from the entry, while still keeping it open.*

**Coffered Ceiling** - Coffered ceilings are one of our favorite elements to include in a room. They add both detail and value. Most well known for its association with home offices, libraries, wine cellars, great rooms, and studies, a coffered ceiling looks like a number of recessed panels, finished with a decorative casing or some form of recessed lighting. The recesses come in many shapes: triangles, squares, rectangles, octagons, hexagons, arches, and circles. This design element can also be referred to as a honeycomb, tray, panelized, or polygon ceiling. When constructed of natural wood and stained to match the rest of the cabinetry or hardwood flooring in a room, almost nothing works better to promote a feeling of quality, craftsmanship, and class in a particular room.

*This master bedroom has a dropped bulkhead around the perimeter of the ceiling and is accented with the recessed pot lighting over the bed.*

**Bulkhead Ceiling** - A dropped bulkhead around the perimeter of a ceiling is an attractive feature of the room. Bulkheads can be square, rounded, or angled, depending on the theme of the room. Often combined with recessed lighting or pot lighting, bulkheads serve as an architectural feature on their own. Although not common to a particular room, bulkheads can be used anywhere in a house, depending on the needs of the space. Dropped bulkheads can be utilized in many places, such as between columns, over bathroom vanities, above kitchen cabinets and over art niches, just to name a few. Because they are such a versatile design element, they can be found throughout a home.

Next time you are in a builder's show home, look around - they can be found everywhere.

*Barrel vaults like this, are examples commonly located over the great room, front foyer, and dining room.*

**Barrel Vaulted Ceiling** - An alternative to a standard vaulted ceiling is a barrel vaulted ceiling. The difference between these two styles is that a barrel ceiling does not come to a sharp point. Rather, it gently rounds up from one end of the vault to the other. Since they are often the substitute to a conventional vaulted ceiling, barrel vaults are often found in the same locations of a house. When combined with arched top windows, it's easy to see why they have become so popular. By not peaking as high as a conventional vault, it creates the perception of a unique and inviting space.



*A smaller version of the barrel vault placed through the corridor is reinforced with arched openings on either side.*

**Dome Ceiling** - Dome ceilings are a specialty type of ceiling detail, usually used to distinguish features of a room or space. Several examples of locations they may be found are:

- Over a soaker tub in the ensuite
- Over the bed in the master bedroom
- Over a dining room table
- Over the island in the kitchen

These are just a few options, and by no means are they a set rule. The height and diameter of the dome is a personal preference, but in general don't make them too small.

*An elegant example of how a dome ceiling can provide a sense of personal scale to a large bedroom.*



*The dome and chandelier in this example are located directly above the dining room.*

**False Beam Ceiling** - Decorative beams can be combined with almost all of the other ceiling styles previously noted. The most popular look for the beams is a dark, coarse sawn, natural look against a light painted ceiling. However, as with other features, many other textures and color schemes will look great as well. Whether paired with an additional ceiling style, or used by itself, it will add enjoyable character to the space. That being said, this ceiling detail has to remain consistent with the rest of the house.

*Decorative false beams in this example, run both directions and are enclosed within a dropped bulkhead ceiling around the perimeter of the kitchen.*

*A beautiful example of a dark, coarse sawn, natural looking false beam, contrasting against a light painted ceiling.*

Ceiling details are a great way to add quality to a room, while still ensuring that all of the ceiling details work well together. The goal is to find the right blend of flat ceilings and more complex ceiling details to properly suit the home being designed. Although it is easy in the early design stages to look at a floor plan and add ceiling details into every room, remember that more is not always better. Hopefully this has served as a guide for individuals on the many options available to them.

## Types Of Exterior Doors

**Entry Doors** - Front entrance doors are often the first impression people get as to the taste and style of the interior of a home. Doors are available in various styles and can be constructed of many different materials such as insulated steel, solid wood, and fiberglass.

*This oversize wood front entrance door is complemented by sidelights and a transom window above.*

Steel insulated doors consist of a pre-hung, steel shell with a core of polystyrene or polyurethane rigid foam insulation. In addition to high fire resistance ratings, steel insulated doors offer significantly higher insulation values therefore making them more energy efficient. These factors, paired with the modest price of steel insulated doors, have made them the most popular choice of new home construction.

Most solid core wood doors are constructed with thin wood veneers that are then glued to a core of generic solid wood blocking. To keep the look consistent, the outer edge of these doors is also constructed of the same wood as the decorative veneer. Some solid core wood doors are still constructed with one or many pieces of solid #1 grade wood throughout, similar to how it was done generations ago. However, be advised, they can be very expensive.

Fiberglass doors are similar in construction to steel insulated doors. They offer many of the same advantages that steel doors offer, but the steel shell is replaced by fiberglass. The

fiberglass shells are usually textured with a wood grain pattern which can then be stained to simulate a real wood product. Fiberglass construction offers an increase in durability (when it comes to scuffs and dents) when compared to a wood veneer door. In the last few years, fiberglass doors have become more popular because they also offer an increase in insulation values over wood doors, while still offering a similar look.

*Double doors with the addition of sidelights creates a very grand entranceway to this estate home.*

All three types of doors have versatility to incorporate many different types of glass inserts. Further, they can be combined with transoms and sidelights to create a very attractive look. Keep in mind, however, that every time a glass insert or sidelight is added into a door assembly, the insulating values decrease. Much of the heat loss from a door comes from conduction through the door itself. That said, steel insulated and fiberglass doors offer better insulating values than solid core wood doors.

*Garden doors often serve as an attractive gateway between the inside and outside of the home.*

**Garden (French) Doors** - Garden doors are constructed of the same materials as entry doors, with a few major differences. Garden doors always have large tempered glass inserts which allow only a few inches on either side for the door material. They are usually constructed in pairs, with one

operating door and one outward venting door that is complete with a screen for air circulation (similar to a casement window). Instead of conventional door locks, garden doors are constructed with sash (cam) locks at the top and bottom of the door, providing added security.

It was once mentioned to us by a client that a burglar tried to break into their home through the garden doors. They tried to quietly drill out the center lock on the garden door located on the back deck. What the burglar failed to realize, was that the door didn't lock in the center, it locked on the top and bottom via the sash locks, therefore, preventing him from gaining entry into the home.

Another advantage of the sash locks is that they pull the door very tight against the weather stripping, decreasing heat loss through the seams. Garden doors are found most often in the rear of a home, off of decks, patios, and multi season rooms.

**Sliding Patio Doors** - Sliding patio doors are constructed in much the same way as horizontal sliding windows. They are found in the same locations as garden doors, and can be equipped with screens on one side to allow air flow to the exterior. There are a few advantages to patio doors over garden doors. They save space because they only slide from side to side and not into the home. They are usually less expensive and will provide better views through to the exterior because the frame around the glass is smaller.

However, there are a couple of disadvantages which typically make them less popular than garden doors. As the patio doors age, the seals and weather stripping have a tendency to break down earlier due to the violent opening and closing action. Often, they will not close as tight, allowing small amounts of

air seepage. Those who have grown up with patio doors in their home, are often frustrated by how heavy and difficult they become to slide back and forth as the years pass.

*The narrow frame profile around the edge of the glass provides a nearly unobstructed view to the outside.*

## **Interior Doors**

The doors in a home serve as the gateway to the various rooms of the house. Although they are not given a lot of consideration by the clients during the design stages of a home, a good designer should ensure that the doors are sized correctly. Door sizes leading into certain rooms will need to be altered for various reasons. A standard door height is 6'-8" tall, and the standard widths will vary be between 2'-0" - 3'-0" depending on what space the door is separating. The next standard height available is 8'-0" tall, with the same standard widths. Of course, custom doors are available in any size and shape to meet any design requirements.

As previously mentioned, door sizes can change throughout the home if cost or space is a consideration. Any place in a home where appliances, such as a washer, dryer, refrigerator, or freezer, will need to be moved through, should be a minimum of 2'-8" wide. Again, that is only the bare minimum; using 3'-0" wide doors in those areas is even better. Likewise, rooms that may require large furniture should be equipped with wider doors to make the transport easier, and sometimes, simply possible. How many times have you returned to your home carrying a handful of items? Since such instances are very common, doors in the front entry and mud room should also be wider for general convenience.

*Double french doors are attractive and functional entries to a room.*

*Many different door profiles are available from manufacturers to match the interior style of your home.*

Directly related to the size of a house, a larger home will generally have wider and taller doors. For example, in a large 3000 sq.ft. bungalow with 10' ceilings, it would be suggested to use nothing less than an 8'-0" tall by 3'-0" wide door wherever possible. Unfortunately, the space in many homes may be too tight and a door less than a 3'-0" wide must be used. With 8'-0" tall doors in particular, wider is better; narrow proportions paired with the extra height becomes increasingly noticeable. Our standard, when noting 8'-0" tall doors in a home, is to keep as many as possible 3'-0" wide, to maintain proper proportions.

There are some places in the home where a narrower door might be suitable. For example, areas in the home such as a linen closet or broom closet are usually tucked away from the main areas of the house. They are small closets, and often don't have the space for a larger door. Likely there will only be a couple of places in the home where this is necessary. Even if such spaces are directly off a main area, the use of a narrower door is logical.

*Sliding and pocket doors can be space savers on bedroom closets.*

*We avoid the use of bi-fold doors on closets whenever possible.*

## **Design Elements - Exterior Openings**

**Windows** - Few elements of the home require as much thought as window placement and design. As with most design elements, there is a tremendous variety in the type of windows and their sizes. Most clients believe that the more windows incorporated in a house, the better. In some situations that may be true, however, a good designer will take special consideration as to what the basic needs are of the space and what the impact of additional or larger windows will be. For example, areas overlooking green spaces or with views of a valley or lake are prime locations for large, expansive windows. If the opportunity of a spectacular view is available, it is strongly recommended to take advantage of it. It is important to note that all areas with large groupings of windows provide opportunities for others to look into the home, while you are casually enjoying the view to the exterior. By adding transom windows into certain rooms, natural light can be brought into a space without allowing people to see in from the outside. Not every room needs large amounts of windows. In fact, overdoing it may lead to a situation which encroaches on furniture placement.

The height of the windows off the floor is another important consideration. It may be desirable to raise the windows up off the floor to accommodate pieces of furniture, window seats, cabinets, and large baseboards with window casings. Furthermore, every time another window is added into a room, it becomes harder to properly control the temperature in that space. Whether the need is to heat or cool a space, the number and size of windows will directly reflect the demands on that system. Careful analysis of the sun's location

throughout the day will also present opportunities for window placement.

*This example illustrates double hung windows which are characteristic of Colonial style homes.*

*Large expansive windows allow for a great view of the surroundings.*

**Casement Windows** - These are windows that open via a hinge on the left or right side of the opening. Windows have the capability to open wide by turning the crank mechanism on the bottom of the window. This allows for both air flow, and ease of cleaning. Casement windows are the most common type of windows in new homes.

**Horizontal Slider Windows** - Windows that open by sliding one half of the window horizontally. They provide great value and reliability with an uncluttered look.

**Awning Windows** - Windows that open via a hinge on the top of the opening. By placing above or below other windows and doors, these windows allow for increased ventilation and sunlight, even when it is raining. Also commonly found in kitchens behind the sink.

**Hopper Windows** - Windows that open via a hinge on the bottom of the opening. Most commonly found in basements.

**Vertical Hung Windows** - Windows that open by sliding one half of the window vertically up or down. Typically suited to a classic/traditional style.

**Picture Windows** - Windows that can not be opened. They come in almost any shape and size, and can be combined with almost any other window style listed here to create a desired look. They are designed with a minimum amount of framework since they do not open.

**Bay Windows** - A combination of 3 windows set at a 30° or 45° angle that projects out from the wall. Often one, or both, of the smaller windows on either side are casements. Most manufacturers will factory install seat boards for window seats if requested.

**Bow Windows** - Similar to bay windows, but with several angled sections gently projecting out from the wall. Most manufacturers will factory install seat boards for window seats if requested.



**Specialty Windows** - Windows that can not be opened. They are unique because they can be built in almost any shape or size, or angled to fit in almost any location.

**Egress Windows** - Simply explained, these are any windows that are intended to provide an additional emergency exit in case of fire. These windows must meet minimum size requirements, which vary depending on the municipality the home is constructed in. The International Residential Code (IRC) requirements are: minimum width of opening 20", minimum height of opening 24", minimum net clear opening 5.7 sq.ft., and maximum sill height from floor 44". Egress windows are required in every room used for sleeping purposes, both above and below grade (ground) level. Thankfully, designers and window manufacturers are up to date on this information, and will ensure that all bedroom windows are properly sized to conform to all building codes.

**Thermal efficiency** - The thermal efficiency of windows is determined by two factors, heat loss & heat gain through the

glass and the frame. Every window manufacturer has a slightly different way of constructing their windows and the materials they use. We will not get into the specifics of what makes them different in this guide. However, we will speak about what the standard glass and frame options are and how they affect performance.

**Low-E glass coatings** - Low-E (Low Emissivity) glass units have a thin metallic coating on the inside glass surface. They reduce energy costs by reflecting infrared and ultraviolet rays outside in the summer and reflecting radiant heat back inside in the winter, thus reducing heat flow through the window.

**Gas filled units** - Gas filled units have argon or krypton gas sealed between the glass panes. These gases are natural, colorless, non-toxic, heavy and inert. These heavy gases reduce conduction and minimize heat transfer through the window.

**Triple glazed windows** - Consists of three panes of glass instead of the standard two. This option can make the windows heavier and more expensive but the advantages are obvious. First, it provides more surfaces for Low-E coatings. Second, it provides an additional cavity which can be filled with argon or krypton gas. An additional pane of glass will also help with cutting down noise from the exterior.

Glazing Type	R-value	Cost
Double glazing	1.5 - 2.5	\$
Double glazing with Low-E	2.0 - 3.0	\$\$
Double glazing with Low-E and Argon fill	2.5 - 3.5	\$\$\$
Triple glazing	3.0 - 4.0	\$\$\$\$
Triple glazing with Low-E and Argon fill	3.5 - 7.0	\$\$\$\$\$

*Please refer to window manufacturers specifications for exact performance ratings.*

Windows are only as good as the frame they are constructed with. Window frames may be constructed of wood, vinyl, metal and fiberglass and will range in price and performance. With an increase in price and technology, air leakage and heat conduction will be reduced through the frame of the window. As you can see by the table, the R-values of even the most expensive windows are far lower than the wall cavity they will be framed into. A 2x6" wall with standard insulation will have an R-value of about 20. The more windows framed into a wall the lower the overall performance of that wall will be.

On the other hand, windows are beautiful and will open up the feel of any space they are located in. When deciding which windows to purchase, consider the frame and glass package as a whole. Depending on what climate you plan to build, and the orientation of your home towards the sun, it may not be necessary to have the upgraded technology on all windows in the home. For example, windows that face north generally won't require as much sun stopping ability as a window that faces south.

A good sales representative with a reputable window company should be able to assist you with maximizing performance while still maintaining your budget.



*If you're lucky enough to have a view on your building site, take advantage of it with large windows.*



*Arched windows have been utilized to tie the overall theme of the exterior together.*

## **Design Elements - Exterior Openings**

**Skylights** - Skylights are a type of non-opening window that is covered with a waterproof and transparent surface. They are mounted on top of the roof instead of in a wall. If positioned correctly, skylights will allow a great deal of natural light into a space; more so than any other type of window. Although beneficial, skylights have developed a bit of a bad rap over the last couple of decades. If installed incorrectly or constructed of unsatisfactory materials, they have had a tendency to leak. Also, because of their location in the roof, cleaning and regular maintenance can be a challenge.

Despite these concerns, skylights can be an important design element. They can be located nearly anywhere in a home, although typically they are found over eating nooks, kitchens, great rooms and foyers. With proper installation, a well-built skylight will bring a family many years of enjoyment from the additional natural light.

*A large skylight brings a lot of natural light into this kitchen.*



*Multiple skylights of different sizes are mounted on the roof of this home.*

**Light Tubes** - Light tubes are highly reflective, round tubes that direct natural light into the interior of a home. The starting point is usually a transparent dome (globe) mounted on the roof. It is designed to collect as much light as possible, and direct it downward into the tube. Light tubes are used to transport the light rays from the dome into interior spaces below. They are most commonly found in the ceilings of hallways, walk in closets, bathrooms and areas that have little or no existing natural light.

Installation in closets is particularly popular for one main reason. Have you ever viewed a piece of furniture in a show room and then brought it home and the color looks completely

*This illustration shows how the light is captured from the exterior and reflected into the interior of the home. (image courtesy of [www.lsuagcenter.com](http://www.lsuagcenter.com))*

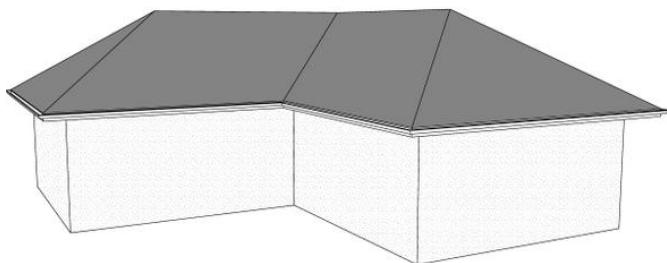
different? The reason for the apparent color change, is that some fabric colors react differently depending on what lighting source it is viewed under. Incandescent, fluorescent, halogen, and L.E.D light sources, all give off different colors of light that may change the colors of fabrics. The same is true for all the various fabrics and colors that one would find in a clothes closet. Many people value viewing their clothes under natural light because it is the most abundant source of light you are likely to encounter throughout your day.

Light tubes are relatively easy to install and can be cost effective. They also allow for the conservation of energy, as electric lights can be turned off during the day.

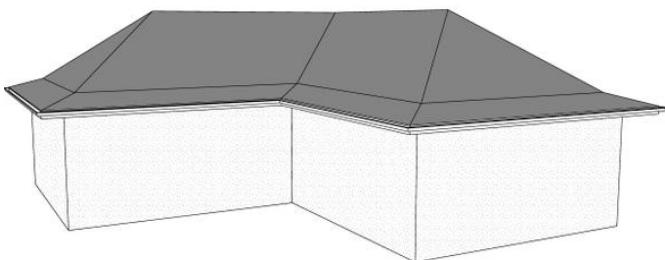
## **Roof Design**

One of the most important and recognizable features of a home is the roof. The roof system combines many individual elements such as shingles, flashing, eavestroughs and downspouts. Its primary function is to protect the interior of the home from the weather elements, particularly precipitation, in the form of rain or snow. Secondarily, it provides a creative opportunity for designers and architects, as it's the most obvious single element on the exterior of a home. The roof design can be used to highlight certain areas of a home or minimize the impact on its surroundings. The following is a selection of the different roof options, which can be combined together in various different ways.

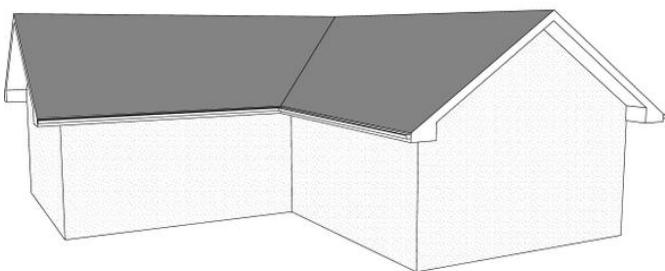
### **Hip (Cottage) Roof**



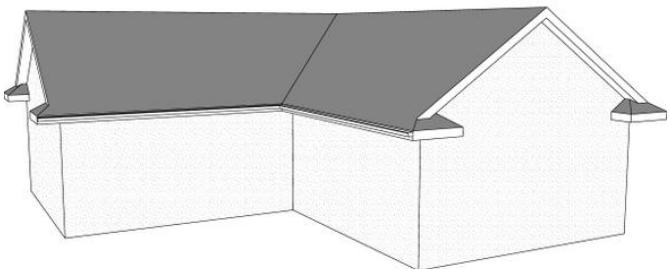
## **Double Hip Roof**



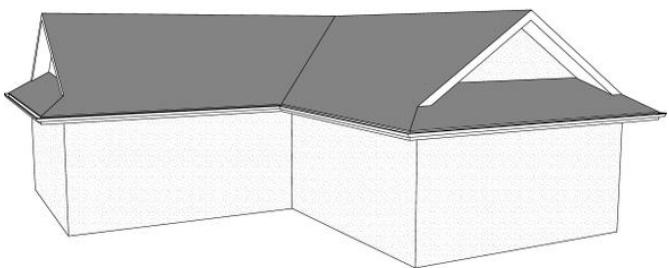
## **Gable Roof**



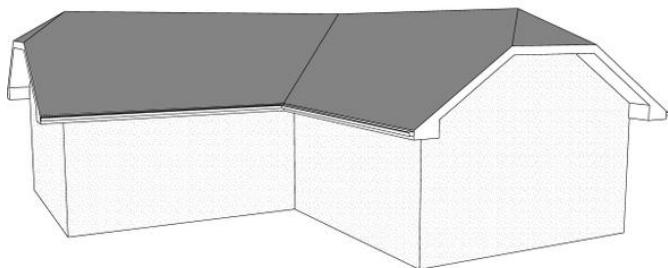
## **Gable Roof with Hip Returns**



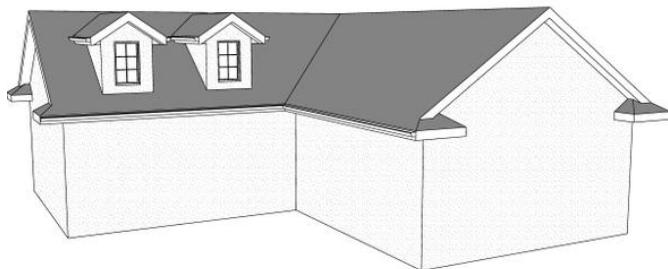
## **Dutch Gable Roof**



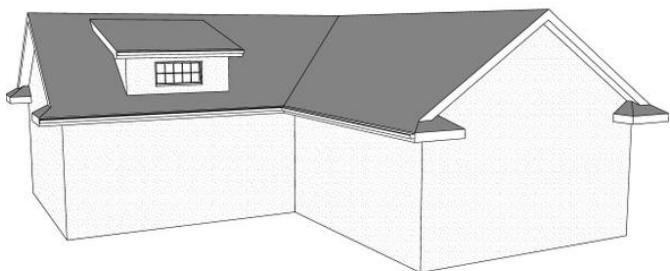
## **Bull-Nose Gable Roof**



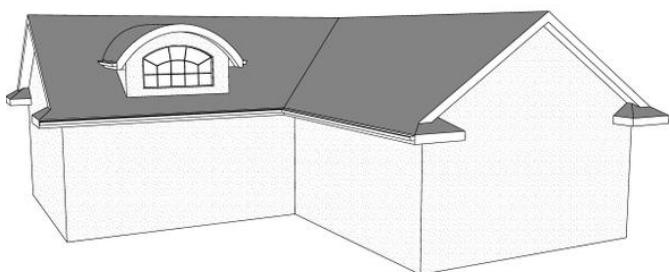
## **Roof with Dormer**



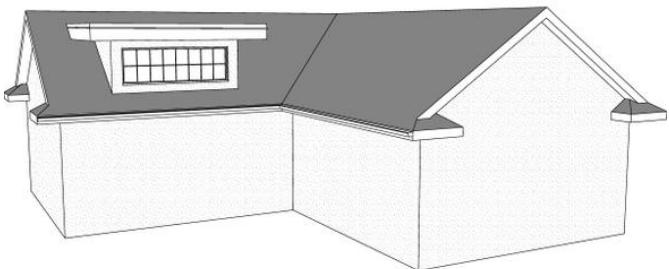
**Shed Roof (shown on dormer)**



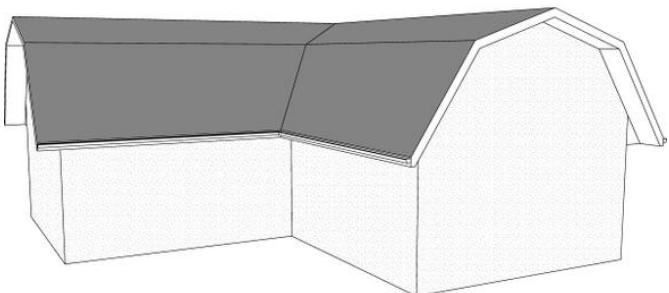
**Curved Roof (shown on dormer)**



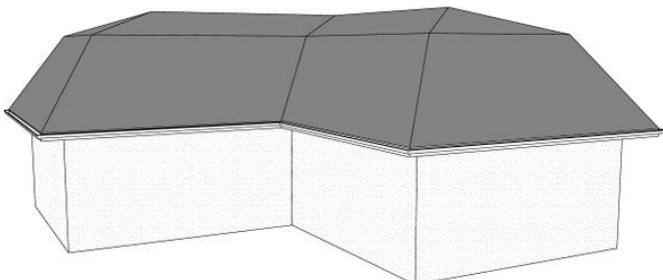
**Flat Roof (shown on dormer)**



**Gambrel Roof**



## Mansard Roof



As you can see, there are many different roof options available. Often, architects and designers will combine many different styles together to create the roof design for a home.

## Roof Components

**Fascia** - Fascia board size can range between 4"-14" deep depending on the style and design of the home.

**Soffit** - The underside of the roof overhang is perforated to provide ventilation inside the roof.



**Overhang** - The width of the overhang can vary between 6" and 36" wide depending on the style and design of the home.

**Roof Pitch** - Measured as rise over run. The pitch (slope) will vary according to the design of the home.

## **Too Much Of A Good Thing Can Be Bad**

Too much of anything can be bad, and there is a tendency when designing a home to pick a theme or detail and incorporate it into as many places as possible. What may seem like a great idea in the design stage could turn out to be overbearing when constructed. Things like arches, niches, ceiling details, glass block, moldings, and excessive amounts of windows, are examples of details that can be overdone.

It is advisable to think carefully about where the various forms of detail should be located and get competent help with regards to those decisions. Although detail is very important and can make an average home look like an award winning home, they can easily become overdone and detract from the overall experience of the home.



*The ceiling design of this kitchen, although beautiful, detracts from the cabinetry, tile backsplash and granite countertops.*

## **Energy Conservation/Environmental Sustainability**

This is yet another section that could have an entire book written about it. As energy prices continue to rise, energy conservation has become a major focus particularly in the last decade. Environmental sustainability has also become a concern, as fears of global warming and environmental stability have gained more attention. Energy conservation can come in many forms, including energy efficient appliances, improved forms of insulation, improved construction techniques, and energy efficient materials, just to name a few. Unfortunately, with any upgrade in performance, materials and techniques will usually become more expensive.

In a perfect world, every home would be constructed with the most energy efficient materials, utilizing the proper techniques. Every day, more and more home owners are following these recommendations and reducing their utility costs significantly; in some cases, home owners produce enough energy to sell back to the grid.

*If the budget permits, solar panels are a great way to lower energy costs and reduce the carbon footprint of the house.*

*As energy prices increase, investments in green technologies become more popular.*

## **Insulated Concrete Forms**

Insulated concrete forms (also known as ICF) are rigid insulated form pieces that hold concrete in position during construction and remain in place afterwards. The forms serve as thermal insulation for the concrete walls.

ICF systems combine formwork, insulation, and sheathing into a single system that is based on a simple concept of interlocking blocks filled with concrete. Experienced installation crews can install the system very quickly with little construction waste compared to standard wood frame construction. Depending on the thickness of the ICF material and the thickness of the wall cavity, R-values can be as high as R-24. More importantly, if the system is installed both above and below grade (ground), there are no seams. Although, in theory, standard wood frame construction walls can be R-20, the joints between walls, floor joists, and openings, provide an area of thermal weakness which lowers the actual R-value of the entire wall.

In addition to providing superior sound resistance, ICF walls also boast outstanding fire ratings and greatly improved wall strength. ICF systems are proprietary, therefore each

*A worker installing a section of horizontal reinforcement into an insulated concrete form.*

*Concrete is being pumped into the form which will remain in place and provide additional insulation.*

manufacturer has installation instructions and reference literature specific to their product.

Disadvantages of this system are that it requires more careful planning at the design stage and is not as versatile for certain design elements. Additionally, finding competent trades that have experience with the product may be more challenging. After an initial amount of resistance, ICF systems are gaining more and more popularity. They can be an effective system and are built to survive generations.

## **Insulation Types And Application**

The purpose of any form of insulation, regardless of the climate, is to slow the rate of heat transfer between warmer and cooler areas. In warmer climates, insulation is utilized to keep heat from entering the home and warming the cooler conditioned air inside. Conversely, in cooler climates, insulation is required to keep heat within the home from escaping to the outdoors. Indicated by their R-value, insulation materials are rated by their ability to resist heat flow.

**Batt-Type Insulation** - Batt insulation is made from fiberglass or mineral wool fibers. It is the most common insulation material and is used inside exterior walls, in between joist spaces, and in ceilings. For every 6" of this material used, the R-value is approximately R-21. Because of its wide availability and relative low cost, Batt insulation is a great option. However, since open air pockets will reduce performance, the entire cavity in which it is contained must be completely filled.

**Loose Fill Insulation** - Loose fill insulation is generally made from fiberglass, mineral wool fibers, or cellulose (organic) material. The material is blown into exterior walls, in between joist spaces, and in ceilings. R-value varies depending on the thickness and density of the material, but generally ranges between R-17 to R-22 for every 6" of fill used. Similar to Batt insulation, loose fill is widely available and relatively inexpensive. It is not without its disadvantages though. Settling of material can occur if it is not applied at the right density, or if it is exposed to moisture for prolonged

periods. The voids that can be created will reduce the performance of the insulation.

*The pink stuff - Batt insulation.*

*Loose fill insulation.*

**Rigid Insulation** - Rigid insulation is most commonly made from several different forms of expanded and extruded polystyrene

*The rigid insulation, pictured above, has additional air and moisture barrier.*

(Styrofoam®). There are many forms of the product available for different applications such as basement insulation, exterior applications, flat roofs, vaulted ceilings, exterior walls below grade, and under concrete slabs. R-values for this type of material depend on the density and the application, but can range between R- 20 to R-30 for every 6" of product used. Advantages of this product are that it can be used in many different applications above and below grade. Rigid insulation is resistant to both moisture and air flow. In addition, the insulation can be faced with further air and moisture barriers, and protection against ultraviolet light. A disadvantage to this product is that it is generally constructed from flammable materials. Building codes require that the insulation be covered by fire-resistant materials such as drywall and concrete.

## **Sprayed Insulation -**

Sprayed insulations are polyurethane compounds that provide excellent insulation values. They can be mixed in a variety of formulations to suit specific applications. For every 6" of product used, the R-value can vary between R-30 and R-38. Sprayed insulation is gaining greater market acceptance because of its versatility. It is also impervious to air flow, water resistant, can bond to irregular shapes, fill irregular voids, and greatly improves acoustical properties. Similar to rigid insulation though, sprayed insulation is combustible and must be covered by fire resistant materials. This type of insulation must be applied by qualified installers only.



*A big advantage of sprayed insulation is that it can expand to fill even the smallest, most awkward areas in a home.*

## High Efficiency Heating And Cooling Systems

All heating and cooling systems consist of three main parts: a heating/cooling source, a circulation system, and controls. These parts are all intended to create the desired environment for



the occupants of the home. The purpose of this section is not to discuss the technical aspects of heating and cooling, but rather to address the new emerging technologies that are relevant to today's environment. With high energy prices and environmental sustainability garnering more and more attention, it is increasingly important to consider alternatives to conventional thinking. To determine what mechanical system will perform the best for you, or what will save you the most money in the long run, please consult a qualified HVAC specialist. By determining the heating/cooling requirements of a house, they will be able to determine what system, or combination of systems, will save the most money and how the budget will be affected.

### Forced Air Furnace -

Furnaces are the most common way to heat a space. Gas fired furnaces can run off both natural gas and propane.

*When properly maintained, a quality forced air furnace will offer years of service with relatively low maintenance costs.*

A mid-efficiency furnace is rated from about 78-82% efficiency,

and requires a metal chimney to vent the emissions straight up through the home. However, as gas prices rise, high efficiency furnaces are becoming more practical and few builders install anything less than high efficiency. A high efficiency furnace can be rated from about 92-96%, which equals a substantial increase in energy savings. For the additional cost of \$500-1000, the energy savings will quickly pay for the upgrade to a high efficiency furnace.

Another advantage to a high efficiency furnace, is that they are vented directly out through the side of the building and do not require a chimney.

### **Hot Water Tanks -**

These systems heat and

store water in an *A typical hot water tank.*

insulated tank, making hot water available on demand. In most climates, hot water heaters are fueled by natural gas. Hot water heating uses approximately 20% of the total energy costs from a home; the most important factors that influence energy consumption are proper sizing and efficiency. High efficiency hot water tanks can perform as much as 40% better than conventional mid-efficiency tanks by utilizing extra tank insulation, improved heat exchangers, and electronic igniters. Energy savings on an upgraded hot water tank can be substantial, especially if you have a large family who shower and wash clothes frequently.

One drawback of hot water tanks however, is the energy wasted by keeping the water continuously hot (also known as standby losses).

### **Condensing Boilers / Tankless Hot Water**

**Heaters** - Tankless hot water heaters are designed to heat water only when it is needed. By doing so, standby losses from continually

heating a tank full of water are avoided. Tankless water heaters are usually installed near places where hot water will frequently be used, such as a kitchen. They are able to supply an endless amount of hot water without the use of a storage tank.

High efficiency condensing boilers are larger, more efficient, and can handle multiple hot water loads, such as dishwashers, washing machines, showers, and hydronic floor heating, all at the same time. Based on the hot water and heating needs of a home, these systems can be sized accordingly; resulting in up to 97% efficiency. These systems are particularly suited for hydronic (in-floor) heating.

# **Client Wish List**

Please follow the link to our [Client Wish List](#) located at BossDesign.ca. Using this tool as you go through each chapter & section of the home during the design process, will help you determine some must-haves prior to your first meeting with the designer.

# Furniture Templates

Please feel free to visit us at [www.bossdesign.ca/  
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