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 Subject: Steps involved in building a house

## Steps involved in **Building A House**

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When building a house, ideally, the weather will be perfect, all the materials will arrive on time and intact, and the trades people a step by step guide to building a house and some idea what each will be ready and on time. Unfortunately this is a very rare occasion. The weather could take a turn for the worse, materials could be late or items missing, the electrician could be held up at another job, or any number of things could go wrong. The point is that building a house can be a chaotic event.

What we have attempted to do with this web site is give you step involves. While certain things must happen before others, like the foundation goes in before the roof, other things may be completed in a different order without creating many problems. In other words this site is to be treated as a general guide to construction.

## GETTING STARTED

**1. Financing:** Before you start anything you might want to talk to your bank or a mortgage company to make sure you are able to get the money needed to complete the house.

- *Don't forget to budget for the driveway, sidewalks, landscaping, fencing, blinds and maybe even some new furniture or appliances.*

**2. Plans:** You could either find a suitable building lot and then a plan to suit the lot, or if money is not a problem and you have your heart set on a specific plan, first get your plans and then a lot to suit the plan.

- *Before you choose a plan, take into account your lifestyle and your budget. It is very easy to go over budget or choose a plan that looks ideal on paper, but does not suit your family.*
- *There are many design books on the market or you could hire an architect or a home designer to design a house for you.*
- *Make sure you have enough copies of your plan, 10 would be really nice. Your building permit will take 2 or 3 copies and you will probably have to leave a plan at your place of lending. That leaves you with 6 or 7 copies left. Many of the sub trades need a plan to price out their work, make sure you remember who has a plan and get it back when they are finished with it.*
- *Most subdivisions will require a set of plans.*

**3. Subdivision:** The developers often control many aspects of what goes into their subdivision. You must decide if their building scheme is within your budget and lifestyle. Most subdivisions will have to approve of your building plan before you may apply for a building permit.

- *A building scheme is when the subdivision owners or the city have placed restrictions on the type, color, roof style, size, basically it could include anything to do with the house or the lot. Some subdivisions have many restrictions and others have none.*

**4. Lot:** Put an offer on the lot, subject to financing and in certain subdivisions subject to the building scheme.

**5. Estimates:** Get cost estimates from all the sub trades needed to complete the job.

- *Make sure that you get several quotes from each sub trade, at least 3 or more, stick to REPUTABLE companies and you will be able to ELIMINATE a lot of problems afterwards. Compare all the quotes to make sure they include the same materials and work, and of course the quality of the material. Cheaper is not always better. Have the material list checked by someone who knows a little about it. Do not be afraid to ask questions.*

**6. Financing:** Arrange suitable financing.

**7. Building permit:** After your plan has been approved by the developer of the subdivision take your plans and a Plot Plan to City Hall for the building permit.

- *A Plot Plan is a drawing of how and where your house will be placed on the lot.*
- *Depending on the time of year and how busy they are it could take from 2 to 6 weeks before the permit is ready to be picked up.*
- *When you receive your building permit, you will receive a list of conditions that must be met. Example: some beams must be engineered or the soil must be tested.*

**8. Getting Organized:** While you are waiting for the permit you have time to get organized and start arranging for:

- *If you are your own General Contractor the first trades to contact are the Surveyors, Framing crew and Excavator.*
- *Contact the electric company to get temporary power and if this takes to long, there is usually a friendly neighbor*

who will let you use their power for a small fee.

- You should contact all the trades you have selected to confirm their availability, when confirming ask each trade during what stage of construction they need to come in to do their job.

## Footings & Foundations

**If you haven't already done so you must soon choose the type of doors, windows, garage doors, siding or stucco, trim, brick, furnace, fireplace, cabinets, bathtub & shower.**

**9. Engineering:** In certain conditions an engineer may be required, City Hall, your General Contractor or yourself may feel there is something about the house or lot which requires a stamp of approval from an engineer.

- When building on a slope you may want an engineer to determine what it takes to keep your house in place. For example, foundation walls may require additional steel, or you may have to use a stronger type of concrete. Using an Engineer might seem a bit costly at times, but it will keep everything in the proper conditions and you may just end up with one of the happier houses in the neighborhood.
- Any basement that has (backfilled) foundation walls higher than 7'-8' needs engineering.

**10. Excavating:** When the framer or the surveyor has marked where the house will be situated on the lot the excavator comes in and digs the hole for the foundation.

### Optional: Surveying

Although it may cost a bit more, in a tight situation you may want a surveyor to mark the corners of the house. Most areas require a survey to be done after the foundation is in. If you get them to come before you start with the footings it will cost only a little more but it could possibly save you a lot of money and frustration. Many a foundation has had to be moved or entirely redone because it was in the wrong spot. You may want to dig to the service hook ups at this time. Ask the Plumber and Electrician about this.

The plumber will do the Storm, Sanitary Sewer and Water Connections. These will have to be inspected by a City Inspector, and the Water Company will want to see the water connection.

The electrician will lay pipes for Cable, BC Tel, and any electrical connections. The wires and cables will be pulled through by the respective Utilities at a later time.

The connection can be dug at a later time if necessary.



**11. Sand & Gravel:** Depending on the excavated soil, you will need good sand, pitrun and drain rock.

- All slabs should have a minimum of 6" of gravel fill under it.
- In certain conditions you will have to bring in fill. Either to raise the level of dirt, or because of unstable dirt. This layer (usually pitrun) will have to be compacted and leveled. Do not be cheap with this; make sure you do a good job. Compacting equipment can be rented from a rental company. Just make sure that you get the proper size equipment for the job.

**12. Foundation:** Order the materials needed for the foundation from the lumber yard and the Forms from the Concrete company. When the materials arrive the framers can begin with the foundation.

- Do not try to save money by ordering all the building materials at this time. You will be the one that will have to move it when it gets in the way. Lumber yards will split the materials up into two or three (or as many as you like) packages.



**13. Plumbing, Heating and Electrical:** Contact Plumbing, Heating and Electrical trades so that they can install anything that is needed before the concrete is poured.

- Example: For Legal Suite the Electrician may have to lay a cable inside the concrete.
- Try not to get too frustrated when waiting for any of these people. Some of the block outs are for their convenience. If they don't want to do them at this time they can dig them out later (but would you want to be the one digging? Ha Ha). Things happen, be nice.

**14. Footings Inspection:** When the framers have finished laying the footing contact City Hall and request a Footings Inspection.

- Some framers will pour the concrete for the footings first and then the foundation, while others will prefer to pour

*the concrete for the footings and the foundations at the same time.*

**15. Concrete:** If the footings are poured first the concrete truck will come twice, once to pour the footings and then again after the foundation has been built. Or if the foundation is built at the same time, the concrete can be poured for the footings and the foundation at the same time.

- *When pouring (usually done by the framing crew) make sure that there are enough people to do the job, especially when the temperature is below freezing.*
- *Also, make sure that there is a vibrator on site.*
- *The concrete company will usually arrange for a pump truck if needed.*



**16. Strip Foundation:** Usually the day after the concrete has been poured the foundation can be stripped. The Concrete company should be called to pick up their forms.

- *Try to place the stripped materials in a place where they are out of the way and will stay straight and clean.*



**17. Damp Proofing:** Water proofing is required on the part of the foundation where the slab or skim coat is below grade level.

- *Can be messy. Just lean against a sprayed wall.*

**18. Drain Tile:** Drain Tile will have to be placed around the perimeter of your house whenever there is living space below grade level (ground level). This includes storage or crawl space.

- *Rules concerning drainage depend on soil conditions, or type of house. In most slab on grade situations (where the concrete floor is above grade level) you may be able to eliminate drain tile. But it never hurts to install it.*
- *This work is usually done by yourself, with good wheel barrows, shovels and lots of friends.*
- *The top of the Drain Tile should be placed even with the footing/foundation joint.*
- *In some municipalities with storm sewers you will not be allowed to hook your down pipes into the perimeter drain. The same goes if you have a drain installed in a well window. You will have to put in a second line and drain it into a gravel pit.*
- *Make sure this job is done properly, it may just prevent you from getting a swimming pool in your basement.*

**19. Drain Tile Inspection:** Inspector from City Hall.

**20. Sewer & Water Hook-Ups:** The plumber usually hooks up the sewer and water. When this is completed the Inspector from City Hall will be called for an inspection. Also, the local Water Company must inspect the water hook-up before it is covered.

- *In case this wasn't done during the excavation.*
- *Note: the gas company will install their own hookups to the gas meter.*

**21. Backfilling & Grading:** After the drain tile has been inspected the backfilling and grading can be done in most cases.

- ***Note:** Again, although at times overlooked, a well prepared foundation for your house and driveway will be one of your best investments. As a builder you will be the one responsible for this. If you are not capable or willing to take this responsibility, hire an engineer or you may want to consider getting a General Contractor involved. Again it may cost a bit, I for one would not fool around with this part. In any case, use common sense and ask when in doubt.*
- *Use good material for inside the foundation, garage, driveway, and side walks. Do not skimp on the compacting of these areas.*
- *Steel will help with strengthening and keeping things in place. But due to settling, you will most likely end up with some cracks in your slab or garage floor with time. Most of the cracks can be fixed.*

**22. Slab or Skim Coat:** Weather permitting your skim coat or slab could now be poured.

- *Slab or Skim Coat: consists of layer of gravel, poly (which must be sealed against Radon Gas), and then a layer of concrete.*
- *A skim coat can be finished by yourself. But for a slab, hire a professional concrete finisher. Note: It is possible, with the exception of a tight crawl space, that the concrete work can be done after the framing is completed. The only difference being that you may get away with using a pump most of the time at this stage, not very likely at a later*

## Framing

**During this stage of building everything seems to go very quickly - it is important to be organized and know when each trade is required and what they might need to complete their job. Have you chosen your light fixtures, closet organizers and flooring yet?**

**23. Framing:** The materials needed for framing should be delivered by the lumber yard. If needed any engineered beams should also be delivered to the building site. These beams are often supplied by the truss company.

- Order Trusses
- Once framing starts establish when the Windows and Exterior Doors should be delivered.
- Apply for a Gas Meter.
- At this time you should be sure of the layout of your house; discuss any changes with your framer. Alterations later on can be messy, costly, and very frustrating for the framing crew. Drop by at the end of the day's work. And do not forget that they are there to make a living. Make sure they can do their job by having the materials on site when they are needed.
- Be certain to discuss with your Framer the work which will be included in the quote he gave you. For example supplying nails, framing up sidewalks and the driveway, etc.

**24. Trusses:** When the framers are ready to place the trusses a crane should be on site to lift the trusses to the roof. If the plywood for the roof has not yet been delivered, make sure it is on the site at this time.

- Cabinet sales person should come down and mark out the layout of all the Cabinets.
- If possible have the large items, such as bathtubs and showers brought in during framing. If this is impossible then some studs might have to be removed to create enough room for the items to fit through easily.

**NOTE:** Too many people working at the same time could create problems. Each trade needs space and time to do a proper job.

**NOTE:** Heating should be started before the plumbing because they are more restricted. It is easier for the plumber to go around the heating than visa versa. Same goes for the Electrical. If this is not possible make sure your furnace installer talks to the plumber.

**25. Heating & Plumbing:** Roof vents should be installed before the roofers go to work.

- **Note:** It is very important that the Heating & Plumbing Trades know where the cabinets are to be installed.
- Heating pipes do not require inspections. You will have to make sure that they do not cause annoying squeaks afterwards. It is a good idea to find the squeaks now, and have them fixed, than to live with them later.
- If you are getting a fireplace don't get one that just looks nice, make sure it is an efficient heating unit. Direct vented and sealed fireplaces are usually the best.
- A rough in for the air conditioning is good to include.

**26. Roofing:** Once the Framers are done with the roof and all the vents have been installed it is time for the Roofers to do their work.

- Roofers will supply roof vents for the ventilation of your attic and they should be able to place them in the proper places.

**27. Electrical:** Electricians start with their wiring.

- **Note:** It is very important that the Electrician knows where the cabinets are to be installed.
- **Note:** Walk through the house with the Electrician and show them where you want all the outlets to be installed. Think of a place for a Christmas light plug with a switch inside.
- High quality stove and bathroom fans are very important. It is well worth the extra cost.
- Most Electricians will install the Cable and Telephone wires. If not contact BC Tel and the Cable Company to install the necessary wires.

**28. Doors & Windows:** When the exterior doors and windows are installed, the house can be locked up. This is usually when you will receive your first draw.

- Make sure the windows price includes screens and night locks. It is very frustrating when you do not notice that the excellent price you got does not include these items.
- A very nice alternative to vinyl windows is wood windows. Very classy.
- The Exterior Doors and Windows should be delivered before the Framers are finished with the roof so they won't have to come back for them later.

**29. Inspections:** Heating & Plumbing will both have to be inspected by City Hall and the Electrical by the Provincial Inspector. Each of these trades will usually call for their own inspections.

**30. Framing Inspection:** Building inspector from City Hall.

- Although, at times, it may seem that the Inspectors only purpose is to create problems for you, do not ever forget that they are doing a job which concerns the safety and to some extend the quality of your home. Any infractions you get should be fixed. You will almost always get some, but at least you know that they are doing their job. At times they will have suggestions, and with few exceptions, they will be most helpful.
- The Inspector will not pass the Framing Inspection until the Heating and Plumbing rough-ins have been installed, but if something is wrong with the framing you could have a bit of a mess on your hands. You might want the Inspector to come before any other trades people come in to check if the actual framing is to code.

## Lock-up stage Completed

# Exterior Finishing

**During this phase of Construction the Exterior & Interior can be worked on at the same time, we will show the steps of the Exterior first.**

**31. Overhead Doors (Garage Doors):** The garage doors can be installed before the garage floor has been poured but for a happier installer have the doors installed after the floor has been done. The drywall should be installed before the garage door but the same applies, the door can be installed before the drywall goes on but it makes it much harder for the installer.

- When purchasing your Garage Doors you may want to consider getting insulated doors. Depending where the garage is located, it could save you a lot on your heating bill.
- Note: Even if you do not want automatic doors, have the electrician install ceiling plugs, and run the needed wiring.

**32. Brick Work:** If you have chosen a plan with Brick Work or Rock Face on part of the house this is the time it should be done. Although it is possible for the brick to be done after the stucco or siding it is usually better to have it done before the stucco or siding is applied. Stone veneers (cultured stone) are applied after a stucco scratch coat.

- There are many styles and colors to chose from, it is best to take along a piece of the siding and trim to help you coordinate the colors.

**33. Siding, Soffits & Gutters:** Most Siding Companies will also install the soffits and gutters, but if not these will have to be done after the siding is on.

- There are several different materials and styles available. In certain subdivisions you may be restricted to what you may use. Find out before hand. If you want a basically maintenance free house, use vinyl siding and have all the wooden posts and exposed wood wrapped.

**34. Stucco:** Stucco can be started weather permitting.

- There are several steps involved. The first is putting building paper covered with webbed wiring on the house, once this is done a layer of scratch coat is put on. The final coat is put on with the desired colors.

**35. Driveway & Garage Floor:** You could start preparing the driveway, garage floor, and sidewalks as soon as your lot has been backfilled and graded. You should wait with finishing until all the heavy trucks and equipment are finished with their jobs.

- **Note:** Except for certain situations make this one of your last projects. Especially when it is not done on the original soil.
- **Note:** Your driveway should be reinforced with rebar. Using Rebar will strengthen the concrete and it will be less likely to crack although it is almost impossible to eliminate all cracks.

- **Caution:** Ever noticed the large amount of driveways showing cracks close to the foundation, usually on corners? Attaching the rebar to the foundation, in most situations, is a bad idea and will cause cracks to appear which would not happen if the slab was allowed to move up and down freely without being constricted by rebar attached to the foundation. By the same token, when the foundation wall is very rough and you pour your sidewalk right up against it you may end up with an ugly corner crack spidering away from the foundation corner. Consider leaving space between your sidewalk and the foundation wall.
- There are different types of surfaces, plain concrete, exposed aggregate, stamped or any number of surfaces may be applied.

**36. Decking:** This should be done after the stucco or siding is up and will usually be prepared by the Framing Crew for your choice of finishing.

- There are different ways to finish your deck such as Vinyl Decking, boarding which can be stained or painted just to mention a few. If you want a low maintenance home certain types of decking last much longer then others.

**37. Railing:** If your deck is 24" or more off the ground it will require a railing.

- There are different types of railing to choose from such as, Wooden, Aluminum, PVC, Tempered Glass, etc.. Again some railings last for years without any kind of up keep and others need constant care.

**38. Landscaping:** In most subdivisions, at the time of purchase, you must give a Performance

Deposit. According to most Purchase Agreements this deposit will be returned after you have completed the exterior of the house according to agreement and this usually includes the front yard landscaping.

- *Most subdivisions have a time limit on when the landscaping must be done by.*

## Interior Finishing

**39. Alarm Prewiring:** If you want an alarm system now or sometime in the future you should have the house pre wired.

**40. Built-In Vacuum:** The rough-in for a built-in Vacuum System should also be installed now.

- *Even if you do not want an Alarm System or Built-In Vacuum it is much easier and cheaper to have them roughed-in now. If you decide to sell the house some day it can be a good selling feature.*

**41. Insulation:** Insulation may now be installed except for the blown insulation which is better done after the ceiling has been boarded.

- *Poly Vapour is placed between the insulation and the drywall and the insulation is sealed around the windows, doors and all outlets.*
- *Drywall should be delivered after the Insulation is installed.*
- *Note: Insulation can be used for sound proofing. Consider bathrooms, laundry rooms, bedrooms, and in between the floors.*

**42. Insulation Inspection:** Inspection from City Hall. The blown ceiling insulation will be inspected during the Final Inspection.

**43. Drywall:** Drywall may be started after the Insulation has been inspected and passed.

- *Boarding goes quickly. The taping and sanding depends on the time of year and what kind of heat you can supply. You may have to get a heater from the Rental Company.*
- *Any additional sound proofing can be done by the drywallers. For example sound bars, etc.*

**44. Cleaning:** The house must receive a thorough cleaning before the finishing is begun.

- *If you haven't already done so don't forget to pick out your Light Fixtures.*

**45: Finishing Carpenter:** At this stage get all your finishing materials brought in.

- *The Painter may want to paint any mouldings or doors before the Finishing Carpenter touches them. In this case the Painter should come in before the Finishing Carpenter. Where linoleum is to be laid, the installer might prefer to have the moulding done after they are finished. Moulding is usually put on before the carpet is laid.*

**46. Moulding Shops:** There are many different types of mouldings to choose from. Mouldings may be used in many ways and places in your home to hide or accent a wall, window or doorway.

**47. Painting:** The Painter will usually paint the kitchen and bathrooms first so the Cabinets can be installed.

- *The Painter will also do all the caulking of the trim to make it appear almost seamless.*
- *If you wish to do the painting and decorating yourself, there are many shops which will have everything you need along with advice and ideas.*

**48. Linoleum:** The flooring should be installed before the cabinets are installed.

- *Although some people may disagree and want to install the cabinets before the lino we feel that if you install the lino first, the lino will have fewer cuts in it, which might eventually break or curl and there is less chance of moisture seeping under the lino and weakening the glue.*
- *The painting is usually finished in the rooms where the cabinets are to be installed first, when the painting is finished the flooring should be done.*

**49: Cabinets:** When the Painter is finished painting the rooms where Cabinets are to be installed, the Cabinets should be delivered and installed.

- *The best way is get several quotes; most will be basically the same price, some higher some lower. The quality of materials used is sometimes overlooked, so always double check the cheaper prices. They may not be worth it.*

**50: Tile Work:** Any Ceramic Tile work can now be done.

- *Remember, too many people in the house at the same time is not a good idea.*

**51. Plumbing:** The kitchen and bathroom fixtures should be installed.

- *At this time they will install the sinks, taps and toilets, they will hook-up the water tank.*

**52. Closet Organizers:** In each closet you will probably want shelves and/or rods, there are many types to chose from.

- *Closet Organizers should be installed after the house has been painted.*

**53. Light Fixtures:** The Electrician will now hang the Light Fixtures and put on the wall plates.

- *Some Electricians will include an allowance for light fixtures. Make sure you know what is included in the the price they gave you.*

**54. Blinds:** Blinds and/or curtains may be put in after painting is done.

**55. Hardwood Floors:** Your flooring should be the last thing installed. You do not want the new floor scratched.

- *Hardwood Flooring is durable, clean and very beautiful with many styles and colours to chose from. It can be installed in only your Entrance Hall or your entire house.*

**56. Carpet:** When the Painting, Cabinets, and Tile are done the carpet may be installed.

- *The Carpet should be the very last thing that gets installed. You do not want any stains even before you have had chance to make the first one.*
- *Clean: Even though most of the trades people clean up their own mess, you want to make very sure that especially the floor is clean and nothing is protruding before the lino or carpets are put down.*

**57. Finishing:** There are usually some marks on the walls from the Cabinets or Flooring and the Painter will come back to touch-up those spots. Also if necessary the finishing Carpenter will finish anything that still needs doing.

**58. Final Inspection:** Final Inspection is done by City Hall and when this is passed you will receive your Occupancy Permit.

- *Some municipalities will, if asked, allow you to move in without an Occupancy Permit, and some will fine you if you do. Ask!*

***MOVE IN!!!!***