

Timber Frames Are Green



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PLANNING YOUR TIMBER FRAME HOME

If you are anything like me you have dreamed about building your own timber frame home for years. Dreaming about it is the easy part. Planning it IS work. Fortunately the more research and planning you do ahead of time the easier it will be for you in the long run. The only regret I have about my now completed timber frame home is that we didn't build it sooner.

I have gathered some pertinent questions it will be necessary to ask & answer before you can realistically start your planning process.

Do I know where I want to build my timber frame home?

- What is your land BUDGET _____? Be realistic.
- What qualities does the property have that may affect your choice of a timber frame plan? How does the land lie?
 - Are there features you wish to emphasize such as a stream ,lake site, waterfalls, distant views, a place for a sunny garden, unusual plants, specimen trees, boulder or rock formations, etc.?
 - Is the land FLAT?
 - Is the land SLOPING?
 - Is the land STEEP? These questions will help you consider where to place the entrance of your timber frame home. You do not have to always have the entrance on the ground floor

- **What if any views do you have that you want to make use of?**

This question is not always as easy to answer as you might think. When planning our timber frame home we had only assessed the property in the spring and summer; when fall came we had a view of the mountains I could not pass up. So if possible you should consider your property seasonally. The leaves are not always on the trees. This should also be taken into consideration when assessing how much natural light a room will receive.
- **How much does Mother Nature love you?**
 - Will your home be subject to heavy snow loads?
 - How much rain will you get? Will you have to have an erosion plan? Will extra money have to be spent dealing with the run off?
 - Snow-belt, Sun-belt, will temperature extremes be involved? Are the R-values of the SIP's going to change from the norm?
 - Let deciduous trees shade your home in summer, decreasing heat gain in summer. They will allow sunlight in to warm the house in winter.
 - A two foot overhang will help protect the sides of your timber frame home and decrease heat gain in summer, and it will let sunlight in from a lower winter sun in the cold months.
- **No man is an island** at least not where most building departments and utilities companies are concerned. Some things to keep in mind are:
 - How will you get electricity to your building site? Is there electric service nearby that you will able use? Are you miles away from the nearest power pole? Are you going to have to pay to run power to your site? Are you going to go solar or have your own generator?
 - Will the property pass a perc test? A perc test indicates the soils ability to absorb liquid over a specified period of time. How long it takes the soil to absorb liquids will be a deciding factor in how large and what type septic system you will be required to have. If it does not pass a perc test you may not be permitted to build on the land.
 - Is there a hook up to local sewer system available?
 - Is there a source of potable water? Is there a hook up to the local water system available? In rural areas, obtaining potable water usually means drilling a well. You may want to find out how deep and how much well costs usually run in your area.
 - How will your building site be accessed? Does it already have a driveway with plenty of parking for construction? With a timber frame you will need at least room for a crane and an area from which to stage the timber frame materials? Is the area ABOVE where the crane will be working free of overhanging branches, power lines, etc.? I have yet to meet a crane operator that trims trees for free.
 - How far away from a fire department is the property? This question is posed for you to consider the after construction insurance costs more than any thing else.
 - Does any one in the household have need to be near to a hospital, dialysis center, etc?

Do you know what style timber frame home you want?

Post and beam, mortise and tenon, post and plate, are to be considered. Not all cost the same thing to construct, nor does it cost the same thing to erect a unique post and plate house as it does a bent type home.

Our timber frame office complex is post and plate timber frame construction of eastern white pine. Our model home's great room is a fine example of compound joinery and is cut of eastern white pine. The remainder of our timber frame model home is mortise and tenon bent type construction and is cut of hemlock from Maine. Our timber frame structures are joined by oak or locust pegs unless a structural engineer specifically calls for metal to be employed in the joining of materials.

Do you know what species of wood you want?

The majority of our timber frames are cut of eastern white pine. Eastern White Pine is readily available in our area, and we believe it is more stable than other woods (i.e. it splits, warps, and twists less than other varieties).

We have cut timber frames of Douglas fir, cypress, white oak, southern yellow pine, and hemlock. We generally use green timbers which have higher water content and are more easily sculpted. We can, however, have the timbers dried prior to cutting. This does add considerable expense and does not prevent the natural cracking or checking of the wood as it dries. It should be noted that the natural cracking or checking of the wood as it dries does not affect the structural integrity of the timber frame structure.

Eastern White Pine is readily available locally it varies in color from white to cream when it is freshly cut, turning to a golden honey color in a few years. It checks less and is more stable than most other woods.

Hemlock which we obtain from Maine and Massachusetts is also white to light cream in color when it is freshly cut turns to a light coffee with cream color after a few years. Hemlock is said to have insect repellent qualities. Hemlock checks and turns more than Eastern white pine as it dries.

It is our standard to use cherry or walnut splines to strengthen the some of the joints in our timber frames. We have at the customers request used splines of oak and southern yellow pine.

What are your timber frame design needs?

You have to decide what your families needs are, present and future. You want a floor plan that your family will be able to enjoy and support your activities throughout the years and still remain functional.

Designing by Wrote. Writing things down is an excellent organizational tool. If you are a couple we suggest you start with two separate lists and then merge them into one. Whether you design the house your self or turn it over to an architect or designer you will need to fill out the lists. Really, they work.

The first list should be that or what is required by code, covenant or development in order to get your building approved. I am going to title this list GOT TO HAVE IT LIST. I will give you some examples of what should be on the 'Got to Have it List'. Each persons 'Got to have it list' will be unique to them and their own timber frame.

"Got To Have It List"

The minimum or maximum sq footage your development allows should go here.

Code issues such as septic systems, set backs, maximum height of the building, earth disturbance guidelines, how far back your timber frame has to be from the creek or stream, etc, should be on the list.

GOT TO HAVE IT LIST

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Add more pages if needed.

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Now you are ready for the 'Way We Were List'. In the past I have suggested to our clients for years is to get out a new piece of paper and write down on one side of the paper things you have loved or enjoyed about all the places you have lived in or visited throughout the years. I have recently broadened the list to include things you dislike about your past homes-so you don't repeat your mistakes.

It will then be easier to see what you really want in your new home and make wise choices. Do you really need a formal living room if you never used the one in your present home? We did this in our new timber frame home and people are always surprised that we don't have a TV in the great room. We do however have an area in the room where people can gather round and make music.

The WAY WE WERE LIST

Home	Liked	Disliked
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____
6.	_____	_____
7.	_____	_____
8.	_____	_____
9.	_____	_____
10.	_____	_____

(Add more paper id needed)

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I have titled the 'If we could list' aka 'REACH FOR THE SKY'.

This is where the list on wish you write down your wants, not your needs. If they are written down you may be able to incorporate them into your final design. But if no one knows about them, how are they are going to get the attention they deserve?

When Joe and I married we had a LOT of books. Surprisingly a lot were duplicates and they were given to 'the Friends of the Library' here in Franklin. The Friends of the Library then sold them to buy different new things for the Macon County Library. One way the architect suggested handling our books was using them to line a few of the walls of our timber frame. That idea was finally incorporated into lining sections of the walls of our loft; the adjacent area serves as a functional seating area for reading, and over flow party area.

REACH for the SKY

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

(Add more sheets if needed.)

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Next you need to find out how your present house is working for you now. In other words are the rooms too big, too little, not used, etc. You will need to write down the rooms in your house along with their measurements, and then write comments about them - out from them. Sounds simple and it is. What is more important is that it works.

How WE ARE DOING NOW?

Room	Size of the Room	Comments about the room
------	------------------	-------------------------

Front Porch or Entry

Foyer

Living Room or Great Room

Dining Room

Kitchen

Mud Room

Laundry Room

Master Bedroom

Master Bath

Bedroom #2

Bath #2

Bedroom #3

Powder Room

Hallway

Deck

Back Porch or Entry

Garage

Patio

Any other rooms you have should also be included – this should be specific to you ☺

(Adds as many sheets as you need.)

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Now we put all the completed lists together:

The GOT TO HAVE IT LIST for Deer Chase

1. Can not build within 30 feet of creek, per Macon County Building Dept.
2. Septic system has to be for five bedrooms - because building dept says someone other than us could make the upstairs rooms into bedrooms.
3. Need structural engineers stamped plans for house footers due to the number of natural springs on the property.
4. Timber Frame Plans (designs, cut sheets) House needs to be stamped by structural engineer per Macon County Building Dept.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

(Add as many sheets as you need.)

REACH for the SKY

1. Library Space for all of our books
2. Kitchen large enough for two people to work in at one time.
3. Two sinks in the kitchen.
4. Lots of CLEAR counter space in kitchen.
5. Pantry for all of our serving pieces and stock household goods.
6. Main part of the house on the ground floor.
7. Multiple ways to access the ground floor.
8. One of the ground floor entry ways should be a set of double doors to move stuff in and out easily.
9. Separate sink areas in the master bath for his and her own areas.
10. Place to make music and have friends over.
11. One of entry doors should spill out to creek side patios area; have easy access to kitchen area.
12. Easy access to mud room/laundry, kitchen from outside of the house.
13. Large but not HUGE master suite.
14. Lot should be flat.
15. Lot should have stream or running water.
16. Lot should be with in 20 minutes of hospital.
17. Stainless steel kitchen appliances.
18. Good view.
19. _____
20. _____
21. _____

The WAY WE WERE LIST

Home Liked

- o Snaggy kitchen had lots of work space & its own pantry.
- o Snaggy had its own library.
- o Snaggy - had plenty of space to entertain.
- o Snaggy - bedrooms were large with in suite baths.
- o Beach house had multiple ways to enter.
- o Beach House had one set of doors wide enough to move any piece of furniture through.
- o Beach House had large screened in porch, large enough for entertaining.
- o Mountain Shadow's had large entertaining kitchen.

Home Disliked

- The Belfry – Kitchen was not big enough.
- Beach house – did not have easy access to laundry/mud room.
- Snaggy - not enough closet space.
- Mountains Shadows was too far from hospital/town.
- Beach house – roof pitch too low
- Mountain Shadows – too much sun in Great Room/ Kitchen from 2-4 pm.
- Mountain Shadows – had to go up 17 steps to get to main living area.

How WE ARE DOING NOW?

Room	Size of the Room	Comments about the room
Front Porch or Entry	8' X 16'	<i>needs to flow better with location of drive way</i>
Foyer	<i>none</i>	<i>need one</i>
Living Room or Great Room	16' X 20'	<i>size good, too dark</i>
Dining Room	12' X 16'	<i>ok</i>
Kitchen	16' x 16'	<i>needs an island</i>
Mud Room	8' X 16'	<i>ok</i>
Laundry Room	<i>same room as above</i>	<i>ok</i>
Master Bedroom	16' x 24'	<i>wrong lay out</i>
Master Bath	5' x 8'	<i>too small</i>
Bedroom #2	9' x 12"	<i>too small</i>
Bath #2	5' x 10'	<i>lay out is poor</i>
Bedroom #3	<i>none</i>	
Powder Room	<i>none</i>	
Hallway	3' x 8'	<i>add 1' to width</i>
Deck	<i>none</i>	
Back Porch or Entry	10' x 24'	<i>would be better if covered</i>
Garage	double	<i>ok</i>

Rooms should be added or deleted this list should be specific to you. ☺

What is below is a rule of thumb room by room guideline suggestion for homes. They are not set in stone. Your local building department probably has their own set of guidelines that they go by. These are a place to start. Your own county building department will be your best source of information.

Kitchens

- * Place them near the dining room; you should not have to go through another room to get to the dining room from the kitchen.
- * Place near a service door to the outside of the house - for less hassle of bringing in groceries.
- * Use a durable, weather resistant floor that goes all the way to the outside door.
- * Position the big "3" the sink, range and refrigerator so they fall with in a 12' - 22' work triangle. The rule of thumb is there should be at least 4' but no more that 9' between each arm of this triangle.
- *Dishwasher and refrigerator doors should not be placed where they would open into any entry into your kitchen.
- * Dishwashers should always be placed near the sink.

Typical appliance sizes are:

- Standard, single door refrigerators - 32" - 34" wide, allow 36" of space.
- Double door refrigerators take up more space. Check the actual size recommendations in the manual.
- Dishwashers - 24" wide.

- Range/Oven 30" wide. * Newer professional grade range/ovens can be 48". Check with your product manufacturer.
- Standard double sinks - 32" wide.

Typical sizes of cabinets and countertops:

Base cabinets (including tops) are 36" tall and 25" deep.

Upper cabinets - 12" deep, placed 15 to 18" above the base cabinets.

There should be at least 24" of counter top on one side of the sink and 18" on the other. This not absolute, but I would not recommend using any less.

There should be at least 15" of countertop on the latch side of the refrigerator. Once again this is not an absolute but a strong recommendation.

There should be at least 15" on one side of the cook top and at least 9" on the other. Once again this is a strong recommendation. Kitchens are expensive to refit.

The Shape of Kitchens

"U" is the most efficient.

"L" works well for an eat-in kitchen.

Galley or corridor works well in smaller house and apartments.

General kitchen spacing: You need at least 36" of space between cabinets/appliances and other cabinets/appliances or islands; 42"-48" Separation is strongly recommended though. This becomes a crucial measurement when trying to incorporate an island. They take a lot of room and shouldn't be squeezed in.

Dining Rooms

I have heard of two ways to size a dining room properly:

1. Allow 42" from the edge of the table to the wall so there is ample room. An example: a 3' x 5' table needs 10' x 12' space.
2. Allow 30 square feet per person. An example: 6 people x 30' = 180 square feet or a room 12' x 15'.

Family Rooms

- Near the kitchen, often open to the kitchen.
- Usually in the rear of the house, allows more privacy, usually not visualized from the front door.
- A small sized family room is around 12' x 16', average size is around 14'x 18'.

Living Rooms

- Usually located in the front of the house, often opposite the dining room.
- Typically has at least one long wall for placing sofa and for hanging formal pictures.
- Minimum size is 12' x 16'; average size is 12' -14'wide by 16' - 18' long.

Foyers or Entry Areas

6' x 6' minimum, 6' x 8' or larger is better.

It is nice to create the illusion of a separate space by employing a "wing wall" or a different type or style of flooring.

Bedrooms

Plan for a least one long wall against which to place the head of the bed. Interior walls have long been used to place the head of the bed (for warmth), SIP's panels have negated that somewhat. Closets have been traditionally placed towards other rooms (to help with noise reduction) or on an outside wall (to help with insulation). However, timber frames are usually enclosed with SIP's making this less necessary; since they provide a tight insulation envelope for your home.

Closets

- Closets are typically 25" deep. Your drywall person is able to split a 4' wide section and handle with a minimum amount of fuss.
- Bedroom closets usually range from 4' to 8' wide.
- Walk in closets provide more free space than do wall closets. Walk in closets are usually "U" or "L" shaped.
- The newer type closet 'systems' provide much better functional use of closet space.

Hallways

Hallways are always at least 3' wide; 4' is nicer.

Book shelves can easily be placed on one or both sides of hallways. This allows for not only functional use of the hallway but also give collectors

much needed display space. Keep in mind the hall will have to be made wider if this is to be employed.

Baths

Smallest three fixture bath is 5' X 8'.

Smallest two fixture bath is either 3' x 7' or 5' x 6'.

Minimum suggested door size is 32", though as small as 24" can be seen. While we don't plan to get old, nor break a leg it happens and wheel chairs only come so small....does your bottom?

Standard sized tubs are 60" x 32" wide; 6' tall with shower surround.

Standard showers are 36" x 36" or 48" x 36", 6' tall; minimum sized shower is 32" x 32" (but you had better be really small to consider this one).

Standard toilet sizes are typically 28" deep by 20" wide and need 24" in clearance in front of and 12" on each side.

Bathroom vanities are usually 31" tall by 18"-22" deep (this includes countertop). A double bowl vanity should be a minimum of 5' wide, single bowl vanities should be at least 18" wide, though 2' is a more realistic minimum. Sinks need at 30" clearance in front of them.

Bathroom plumbing is most cost efficient when placed back to back and stacked floor-to-floor to other bathrooms in the house.

SUN

The sun rises in the EAST and sets in the WEST.

EAST is warm and bright. West is hot and dark.

Typically speaking, rooms that appreciate the morning sun, as kitchens and your bedroom (if you are an early riser, or don't normally work the night shift) should face East. Rooms like the kitchen that we don't traditionally want to get too hot should face the East.

The North side of the house is always going to be colder than the other sides. This is also true of the mountains; the North sides of mountains retain their snow longer than the Southern exposed mountain sides.

Spans

Try not to span more than 32'. Timbers longer than 32' are difficult to find, and any thing that is unusual or difficult to find is more expensive as a rule. See new design guideline sheet.

Roof lines and Roofs

Generally speaking the steeper the roofs pitch (the degree of slope to your roof) the better the house looks. Roof pitches that look good are 6/12, 9/12 or 12/12. 12/12 roofs are very hard to work on but have the advantage of giving you more square footage under them, if you want it. If you prefer a less steeply pitched roof we can always make the knee wall deeper to give you more room in your second story or loft area.

If your house has multiple roof lines try to keep them at the same pitch.

When considering your roofing materials keep in mind what looks best (shakes or metal) also costs more. Labor costs to have a metal roof or shakes is also higher.

Not all shingles or metal roofing materials are certified for direct application to SIPs. Most building departments require that you have written documentation from the manufacture as to what standards they have met, etc. Cost should not be used as an indicator that the shingles or metal roofing meet these higher standards. Shingles not certified for direct application to SIPs have been known bubble or wave up.

Stairs

I personally like stairs that are four feet wide rather than three; if a person needs help, it's easier to walk beside them than behind them.

Your local building department will your best bet on stairs regarding what is permitted and what is not.

Structural Engineering

Check with your county's building department, they will be able to tell you if the plans for your timber frame will need to be stamped by a structural engineer or not. We have found that areas that utilize the 2003 Universal Building Code require your plans to be stamped. It is always best to check with the building dept.

BOOKS

There are many books out there on how to plan your house. One I always suggest is The Not So Big House by Sarah Suzanka, it should be available at most local libraries as it has been out for many years. Many more suggested readings are to be found on this web site under the associations & links sections, under Suggested Readings.

CABIN CREEK TIMBER FRAMES

828-369-5899

6624 Georgia Road Franklin, NC 28734

www.cabincreektimberframes.com

jbelle@cabincreektimberframes.com

00009