Points for consideration if you are thinking of **stick building**:

Most banks will not allow a homeowner to be the General Contractor (GC) for their own project and with good reason because there are so many subcontractors to manage. Coordinating each aspect of your project is tricky and time-consuming. However, if your GC is well versed in all aspects of building, you will be in good hands.

One of the most difficult aspects of building is obtaining *exact* costs for the home. The purpose of this worksheet is to give you a thorough understanding of why this is difficult to assess as well as give you an idea of the numerous decisions you will have to make as you move forward.

Obviously, the rewards are great but before you jump in, let's take a comprehensive look at the process.

1) You have to find a lot that already has the necessary building permits in place. As you know, in Vermont, getting approval from zoning boards is not an easy task. Attempting to obtain permits *after* you have bought the land is not a recommended path we would suggest you take. This road could be long, expensive and in the end, may not pay off.
2) Once you have your dream lot, you will need to either hire a GC to handle all the subcontractors or you will have to get estimates from them on your own. Again, a good GC already knows who is good and for the most part also knows who will give him their best price AND keep to a dependable timeline.
3) Initial site improvement estimates will be needed from the following:
    a. An excavator to clear the lot, build a hole for the foundation, put in a driveway or road to your dream house and put in your septic system.
        i. If saving trees is important to you, be sure you pick a company who will care enough to do their best to comply with your wishes.
        ii. Driveways are expensive to put in. An excavator has to put down specific materials to do the job right and the longer the drive, the higher the cost. If you don't want gravel (which will need to be repaired periodically because of potholes), pavement is expensive. But then again, dirt roads can do a real job on your car ☺
    b. City water or well? If you are lucky enough to have access to city water, you can more easily pinpoint the cost to bring the water to the house. But drilling for water is tricky. A company can give you an estimate but most companies won't give you a firm number because they can't be 100% sure of how far they will have to drill before hitting water. And once you hit it, hopefully it will deliver enough gallons per minute to adequately meet the needs of your family. Then once tested, you may need to put in a softener unit or other chemicals to bring it up to drinking quality levels.
    c. Septic: Depending on where you live if a mound septic is required, this can be quite expensive and some folks don't like the sight of a hump on their land. If you can place it where it is hidden that works great but it will depend on the site drawings. The permit generally includes both the type

and location of the septic as recommended by an engineer so you may be limited.

d. Even though you have a permit allowing you to build a home, most towns also require a separate building permit.

4) Another step is to draw up house plans either by buying plans, letting your builder help you design it (Workhorse can do this) or hiring an architect. Our site has a checklist for Choosing a Builder.

If you are thinking of building a modular home the previous 4 points apply. In addition, consider the following:

- How much experience does the General Contractor have?
- Will he handle every aspect of your project from getting bids for the site work, to coordinating the subcontractors involved in the project?
- Does he have the proper skill level to complete the customized portion of your home including built-ins, porches, decks, stairs, hardwood floors, tile installation, etc?
- Has he ever built a modular home before?

When researching a **modular manufacturing company**, there are some key points to keep in mind. Such as:

- □ Will the company you choose be responsible for the entire project? Or will the company simply sell you the modules and leave the rest up to you?
- □ Will the builder you choose handle every aspect of your project?
- □ Have you checked references and walked through a house they've already assembled?
- □ Are the modules equal in quality between the manufacturers you are comparing? It can be tough to compare but Joseph can help you choose the right company.
- □ Compare quality of products & pricing for each modular manufacturer in the following areas [Special Note: Are the products they use from *reputable* manufacturers with good warranties?]:
  - □ Cabinets
  - □ Plumbing fixtures and fittings
  - □ Windows and doors
  - □ Siding
  - □ Roofing (25-year three tab shingle)
  - □ Does the price include housewrap? (wind and moisture barrier)
  - □ What is the R-value of the roof insulation?
  - □ What is the **quality** of the furnace that is included in the price?
  - □ Does the price include the cost of an above-average foundation? (i.e. Will the concrete strength be adequate, and will it be level and square?
  - □ Does the price include appliances and if so, what is the allowance for each of these and what is brand are they using?
  - □ Are house seams filled with insulation to create a more energy

efficient house? Are floors and ceilings bolted? Is engineered lumber used to guarantee structural integrity and straightness of walls for cabinets, etc.?

 Will the modular <u>manufacturer</u> set their own home? (This is <u>extremely important!</u>)

 How easy is it to special order custom items and who will be responsible for tracking these details?

 Will the contractor give you a **firm fixed price** once you have completed your floor plan and made changes? No matter what, be sure to ask what their policy is for **change orders**?

 How much will the company charge for **<u>upgrades</u>** within the modules? Will they add profit to every item you add on?

For **<u>modular homes</u>**, upgrades may include but are not limited to the following categories:

- Kitchen **<u>cabinets</u>** and bath **<u>vanities</u>** – as you know, there is a wide range of different levels of quality in cabinets and vanities. If you want a pantry or pull-out drawers for your kitchen, these can be quite expensive. Cherry and high end finishes can also be quite costly. Do your homework by visiting a kitchen and/or bath shop that can explain the different features of vanities and cabinets.
- **<u>Flooring and underlayment</u>** (for stone, tile or hardwood floors). If carpet comes with the module, what is its quality? Often modules include a low grade, low pile carpet and pad so consider upgrading if you can afford to.
- **<u>Countertops</u>** (granite, Corion, marble, slate, etc.). Generally, modular companies have limited choices on colors for Formica countertops and you may wish to upgrade to a higher quality product;
- **<u>Fixtures and fittings</u>** (these can be very expensive if you want a customized look but often well worth it – or you can upgrade later);
- Special **<u>windows</u>** (obviously, you can spend a fortune on name brand ones but some of the modular companies use good windows but not necessarily on a level with Pella or Anderson); Do the windows tilt out for cleaning? Do they have any security bolts?
- **<u>Doors</u>** (solid, wood or pocket) – think about layout – pocket doors can be the perfect fit in the right place but they costs more.
- **<u>Roofing</u>**: Do they use architectural-grade shingles? What is the warranty?
- **<u>Lights</u>**: lighting is extremely important to most people. Be sure you have plenty of task lighting in your kitchens and baths. Consider installing dimmers where appropriate.
- Special **<u>ceilings</u>** (vaulted or Cathedral): As beautiful and elegant as high ceilings are remember that it costs a lot more to heat and cool such spaces.
- **<u>Siding</u>** (will it included housewrap, a wind and water barrier). Certainteed has a vinyl siding product line that Workhorse Construction uses almost exclusively. They back their products with a lifetime, <u>transferable</u>

warranty. Cheap siding can not only warp with time but because the color is only on the surface of the vinyl, crashes can show. Whereas Certainteed's line has color throughout each strip. Of course if you want natural wood siding, price starts to rise.

- What is the R-value of the **insulation** for the walls and roofing?
- **Trim** for casing and base (don't assume trim is included around the windows because this can cost extra, in particular, if you want a bare wood finish)
- **Shutters** (louvered or paneled?)
- **Crown molding**
- **Beams** for support caused by change in design
- stair tread upgrades and railings (it's more expensive if you want natural wood on the treads and railings)
- **Skylights**
- Extra **baseboard units**
- **Extra** thermostats, cable or telephone jacks, smoke or carbon monoxide detectors.
- What is the quality of the bathroom **fans**?
- What kind of mirrors are in the bathrooms? Do they come with a medicine cabinet? What do the lights over the mirror look like? Is there enough wattage? Are there enough outlets by the sink for you? [We highly recommend 4 as 2 often isn't enough]
- Will your **stove fan** vent to the outside?
- **Chimney chase**
- **Fireplace and mantels**
- Is the **framing** 16' on center or is the roof 24"? Obviously, the closer they are together, the stronger the building.
- If your modules are **oversized**, an escort will be required (more $$).

Details to fine tune **both stick built and modular homes**:

- Knobs for vanities and kitchen cabinets
- Do you want **lighting** in closets? In the center of every bedroom? What about ceiling fans? Canned lights in the kitchen? What about hallways? Do you want a chandelier over your kitchen and dining table? What do the lights look like in the bathroom?
- Do you want a front **porch** or **deck**? What building material will you use?
- Does the site allow natural **gas** or will you need propane if you want a gas fireplace? What does it cost to install a propane tank and how much is propane going to cost?
- What will you put on the **floors**? Go to a flooring store that has everything so you can learn about the differences in products. There's a lot to know.
    - Hardwood is great on the feet and legs and good for the kitchen but often shows water spots. It can also periodically need to be re-sanded and this can be very messy and disruptive.

- Tile in the kitchen may look awesome but if you like to cook, it will be tough on your legs and feet. Plus is you drop anything, 99% of the time, it will be toast.
- Vinyl has come a long way in both design and upkeep.
- Marmoleum is a excellent, durable green product but a little pricey.
- If you use tile or marble in the bathrooms, in Vermont, the floors will be mighty cold. Consider installing heat under the floor. These products are not nearly as expensive as they used to be.
- Though granite, marble and some tile floors are beautiful because they are shiny when the floor gets wet, it can be dangerously slippery so keep that in mind if you are thinking of putting it in a kitchen or bath.

Ask the Builder has put together more guidelines to follow to ensure that you have a quality building experience. They are listed below or you can visit his website for more: http://www.askthebuilder.com/B317_New_Home_Constructiaspectshecklist.shtml

- Footings - Are footings continuous under all foundation walls? Do they have two steel bars?

- Foundation - Is foundation plumb and square? Does wall thickness correspond with code requirements with respect to backfill height? Refer to local code!

- Foundation Drain Tile - Does foundation have 4 inch perforated drain tile? If lot has slope, does tile daylight so water flows away naturally? Is tile covered with two or three feet of washed gravel? Is the gravel covered with straw or felt paper BEFORE backfill dirt is placed?

- Insect Control - Has termite control been performed BEFORE slabs are poured? Has lumber been treated with the effective borate chemicals to repel termites?

- Vapor Barriers - Is a plastic vapor barrier under ALL basement and garage slabs? Is it in place in crawl spaces?

- Septic System - Is septic tank sized properly? Are leach lines put in according to local code requirements? Is the leach field mapped so you know location of all distribution boxes and lines?

- Concrete Slabs - Are all exterior slabs self draining? Are all control or contraction joints saw cut a minimum of 1/4th the slab thickness?
- Staircases - Are they 36 inches wide? Are all riser heights the same? Do the stairs meet code requirements?

- Trenches - Are trenches that cross or pass under paved areas filled with self-compacting gravel?

- Roofing - Is felt paper under the shingles? This is often a manufacturer stipulation to maintain fire classification.

- Wall Water Barrier - Is felt paper or an air/water infiltration barrier on exterior walls? If not, what will prevent wood rot?

- Brick - Are flashings in place at base of wall and above and below all windows and doors? Are weep holes 24 inches or 32 inches on center? Is a fabric in place behind first 4 courses of brick that keeps pathway open to weep holes?

- Skylights - Do skylights have pre-engineered flashings to prevent leaks? e.g. Velux brand

- Furnace / AC - Are supply ducts sized right to minimize static pressure drop? Has a proper heat gain/heat loss calculation been performed to ensure the right sized equipment is being installed? Show proof of calculations.

- Water Heater - Is heater sized right for number of occupants? Is the heater equipped with an expansion tank?

- Fan / Dryer Ventilation - Are all fans and dryers vented to the exterior of the home?

- Water Supply Piping - Are water supply lines 3/4 inch diameter as they feed each group of fixtures? 1/2 inch water lines should never serve more than two fixtures.

- Valves - Are all valves in the water supply system ball valves? These cost only a few dollars more and are washerless. They allow full bore water to flow through the valve!

- Drain Piping - Are plumbing drain lines that take water waste cast iron? If not, will they be insulated to minimize noise?

- Soundproofing - Are bedroom wall plates caulked at floor contact? Are walls filled with sound batts? Are bedroom doors solid wood or solid core?

- Electric Service - Is electric panel sized so that you have 5 to 7 empty slots? Is a whole house surge protector installed?

- Wood Sub-floors - Are wood sub floors screwed to floor joists in all hallways and walk path areas in rooms?

- Owner's Manuals AND Installation Instructions - Are all owner's manuals for ALL items being saved? Installation instructions are VITAL. They must be saved in case you need to show that an item was not installed correctly.

- Photos / Videos- Are you photographing all aspects of construction on a daily basis? Things that seem dull or unimportant will be valuable to an expert at a later date.

- Truss Lift Connectors - Roof Trusses should NOT be nailed directly into top wall plates. A special inexpensive L shaped connector connects trusses to interior wall plates.

- Insulation - Does attic insulation meet minimum code requirements for your area? Are baffles in place over exterior walls to keep ventilation path open between soffit and roof ridge?

- Wall Blocking - Is solid wood blocking in place for all wall fixtures such as drape rods, towel bars, tub grab bars, heavy pictures, or any other heavy item that will be hung from a wall?

- Ceiling Fans - Are bedrooms wired for ceiling fans? Are special fan electrical boxes in place for future fans? Are wall switches in place for these fans?

Thanks to, Ask the Builder, Tim Carter for providing the above guidelines.

Yes, it's a lot of work involving infinite details but worth every effort!

Happy building!