

Constantine Builders, Inc.

Joseph M. Constantine, Jr.

STANDARD CONSTRUCTION SPECS FOR CUSTOM HOME BUILT BY CONSTANTINE BUILDERS, INC.

1. **Site Work:** Maximize sunlight. Save as many established or native trees as possible. Site home for best drainage and best view. Plan plantings to protect home as well as enhance it.
2. **Excavation:** Stockpile native topsoil for reuse. Drainage pipe on interior and exterior of footings. Drained to daylight if available. Sump pit and pump added to each basement. Clean #2 stones under entire basement floor for drainage. Filter Fabric covering exterior stone and drainpipe to prevent silt infiltration. Backfill foundation with sand. (Less pressure on foundation walls and better drainage). Drainpipe installed around exterior of garages and porch foundations. Sand inside of filled porches and garages tamped in layers with mechanical plate compactors to prevent settling. Driveway base consists of road fabric; 12-inches of bank run gravel with 4-inches crumbled rubble topcoat. Standard.
3. **Foundation Work:** All concrete to be 4000 lb high strength mix. Footings are 11-1/4 inch deep. Average is 20-24 inches wide with min. two (2) continuous 1/2-inch steel rebar embedded within. 24 inch vertical pieces of rebar, every 48-inches tie the footings on the foundation walls. All full height walls are at least 10-inches thick with min. 4 pieces continuous rebar. Post piers in Basement are 36 inches x 36 inches, 12 inches deep with 4 pieces of rebar grid embedded. Walls are coated with a damp-proof coating below grade with water proof mastic over form ties. Damp-proofing allows basement vapor to dry out to outside, yet stops water into interior. Basement floor is minimum 4-inches thick with fiber mesh mix to minimize cracking and for strength. Garage and porch floors are 6-inches thick minimum. Porch floors also have a 4-foot on center rebar grid embedded for strength. We also do projects using insulated concrete forms (ICF) systems. Each is unique and has its own set of specs. If requested will be made available.
4. **Framing:** All wood to concrete connections are made using pressure treated wood. This 'plate' is first protected with a polyurethane sill sealer-insulating roll. This acts as an air barrier as well as a capillary break. All floor joists on new homes are engineered lumber. Sized to be bounce free. Either 'I' joists or floor trusses. All floor, wall and roof sheathings are with real plywood. No flake boards used. Floor is minimum 3/4-inch tongue groove. Glued, nailed, and screwed to joists. Wall plywood is 1/2-inch 4 ply CDX. All roof plywood is minimum 5/8-inch CDX. All exterior headers are 2x12 or Microlam as needed. Only premium grade or engineered lumber is used in framing studs.

- 5. Roofing:** For painted drip edge, we use heavy gauge painted steel drip. Only Grace brand ice and water barrier is used. Minimum 72-inch on eaves. More if larger overhang. 36-inch in all valleys', 18-inches on all sidewalls. On new homes, minimum 40-year asphalt shingles applied. All flashings to be copper. Ridge vent is a roll vent with mesh screen to prevent bug and bat infiltration and allow excess moisture to escape. This vent is then shingled over with matching shingles.

Note: Rarely do we use metal valleys because of leak potential. Instead, we weave shingles into valleys. If requested, copper valleys are used.

- 6. Siding:** If it is a lap siding such as cedar or vinyl, all exterior wall sheathing first covered with Tyvek House Drain Wrap for air barrier and water drainage. On lower coverage behind brick or siding within 8-inches of ground, ice and water membrane is used. For cultured type stone, we use double layers of a protective membrane. Soffits have continuous venting in accordance with venting system used for each project (unless spray foams are used in rafters).
- 7. Windows and Exterior Doors:** Regardless of manufacturer, although we prefer Pella, we install all with a dedicated water management system. Ice & water on base of unit covering wood sill framing. Window is then installed and plumbed and squared. All nail holes in nail fin filled. Silicone sealer is applied in a continuous bead. Ice and water is applied to sides and then head. House wrap covers head flashing. For exterior doors: Door is raised off sub floor with appropriate filler plywood to allow for clearance with doormats or future flooring. This piece is then covered with an ice and water membrane. Two (2) continuous beads of silicone are applied on top of this membrane. Door is installed. Sides also have ice and water. (Before if wood brick molding. After if nailing fin). Both are then caulked too. All exterior doors ordered with adjustable sills. Window specs are a minimum of double insulated glass. All with Low E coating and argon gas between panes.
- 8. Plumbing:** We only use tankless hot water heaters. They deliver continuous hot water between 3 to 10 gallons per minute and yet have no storage charges to the homeowners. Warranties are double that of tanks too. All homes have sump pumps installed. All fixtures have separate shutoffs or stops. For piping, we prefer PEX over copper for better flow rates, less cost and greater burst resistance.
- 9. Plumbing Fixtures:** Chosen online or ordered direct from a wholesaler. Many suggestions provided on a proposal, as well.
- 10. HVAC (Heating, Ventilation & Air Conditioning):** Only high efficiency units used no chimneys. Mostly hot air type systems used. (93-97% efficient). All ductwork is sealed. High efficiency filter system used and heat recovery ventilation systems available as well as many other used options. (Fuel choices: we prefer a gas source- natural gas or propane). Even return air ducts are metal piping, not panned. Ventilation is either continuous with an H.R.V. (Heat recovery ventilator) or by a 20 cfm bathroom fan or as needed by bath and kitchen vent fans. All combustion appliances are sealed combustion only. For A.C. we use Carriers, High Seer Puron units (if an A.C. is required).

- 11. Electrical:** Mostly typical with a few exceptions. By rule, we don't install recessed lighting in 'cold' ceilings. (i.e. ceilings below attic space). Too much heat and moisture loss with fixtures available today. We do install a better bath fan. Quieter and more energy efficient. Fans with 2 speeds allow you to run continuously on low speed to get constant air exchanges in your house for better quality air. We also use more electrical home runs than many do. We don't jab wires into back of outlets, but wrap all wires around screws for lasting connections. We regularly install whole house generators as an option. Structured wiring for computer needs and entertainment systems are available also.
- 12. Insulation:** All insulation installed is above code requirements. R-21 in 2x6 walls. Depending on ceilings, R-38 plus or R-50 plus, in ceilings. No poly on walls. We let our houses breath from both sides. All insulation is tight and personally inspected by me. All penetrations through floors are fire sealed with special caulking. All penetrations to exterior are air sealed with silicone caulking and flashing. Spray foams around exterior penetrations used and also available for attic spaces. Basements insulated according to individual needs, i.e. finished or unfinished spaces differ. We also use and/or offer open and closed cell foam insulation. All Banjoist area sprayed with foam before adding fiberglass. All floor to bottom of sheetrock area is also foamed before finished flooring is installed. This stops air leaking up into walls and into attic or outside.
- 13. Sheetrock:** No paper in wet areas. On ceilings with trusses, we use only 5/8" sheetrock. All sheetrock is foam sealed to bottom plates for air sealing.
- 14. Wall Panels:** Available as an option. Pictures available on website.
- 15. Ceiling Options:** We do trays, coiffured ceilings all the way to knotty pine.
- 16. Painting:** Only low or zero VOC paints used. We prefer Sherwin Williams Harmony Paints or AFM Safecoat Paints. We sand coats smooth before applying final coats.
- 17. Interior Trim:** Mostly custom made in our shop. Poplar preferred. Many samples are available. We have a dozen custom knives. More can be made.
- 18. Interior Stairs:** Built at a local stair shop or by us. Custom designs only.
- 19. Kitchen:** Only high quality, low v.o.c. product used. See website for several completed products.
- 20. Bathrooms:** Electric Radiant Flooring available. Under tile flooring or laminate. All tiles applied using Thin set (Super Flex by Tec) over Wonderboard or Durarock. Underlayment is also set in Thinset and screwed down. For wet areas, we use Schluters Kerdi Systems. We do our own tile jobs. We prefer working with natural materials like marble, limestone, granite etc...or handmade products. But will work with most products. We inspect each sample chosen to be sure of its durability first, and then we'll work with it.
- 21. Flooring:** We prefer to use only pre-finished wood, for hardwood flooring. We do custom borders as well as parquets, etc... We also install a good quality

laminate flooring. We have available to us installers for other flooring options as carpet, linoleum (not vinyl), cork and bamboo.

- 22. Options:** **Bilcos**
Generators
Fireplaces
Built-ins
Special Needs
Solar Panels

Plus, as custom builders, many other options open to you.