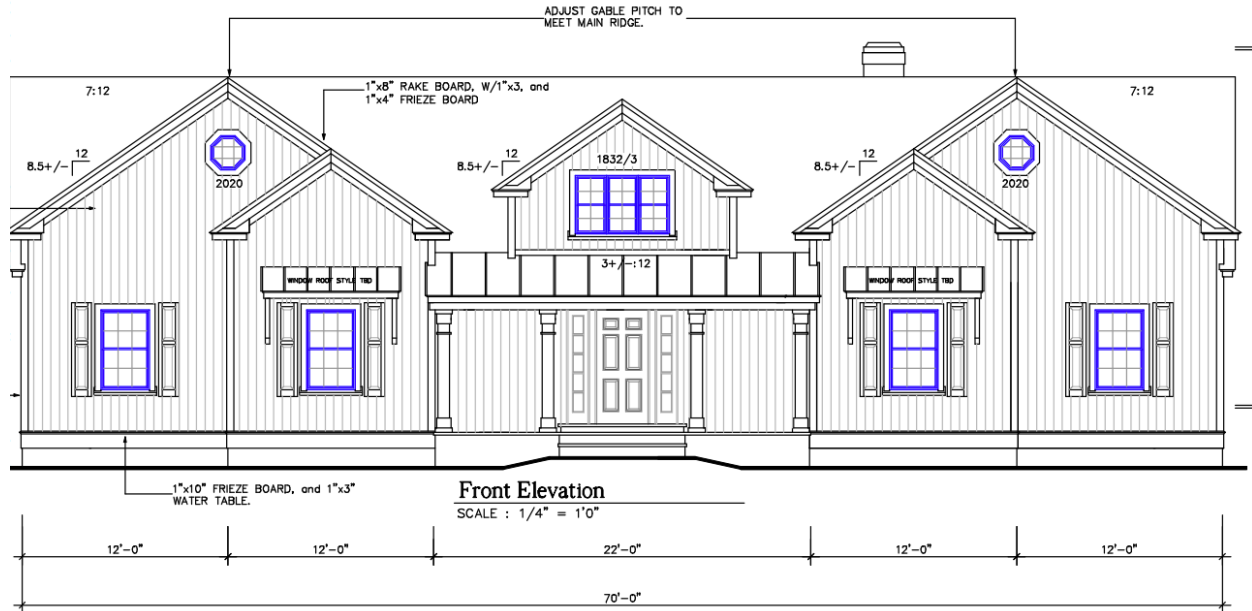


RMestimates.com
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603-206-9556

Customer: Contractor
Contact: Contractor@builder.com
Project: 1 story home 2500 sq ft.



Project synopsis:

4 bedroom 2.5 Bath new construction home with a cathedral ceiling family room and full basement. The home has approximately 2,500 sq ft of living space.

Comments:

Home has a full basement with one slider. Plans show an unfinished space in the basement.

The carrying stick specifications aren't described in the drawing. They are assumed to be constructed of LVL's. Confirm with the architect and builder. Floor joists listed in the drawing are I-joists which are contained in the estimate. A spec sheet is in the concluded comments segment so it can be reviewed. It's assumed the chosen joist will be a 14" I-joist which is one step above what's listed in the specs as a requirement. Expect a small cost reduction if the architect or builder determines it unnecessary.

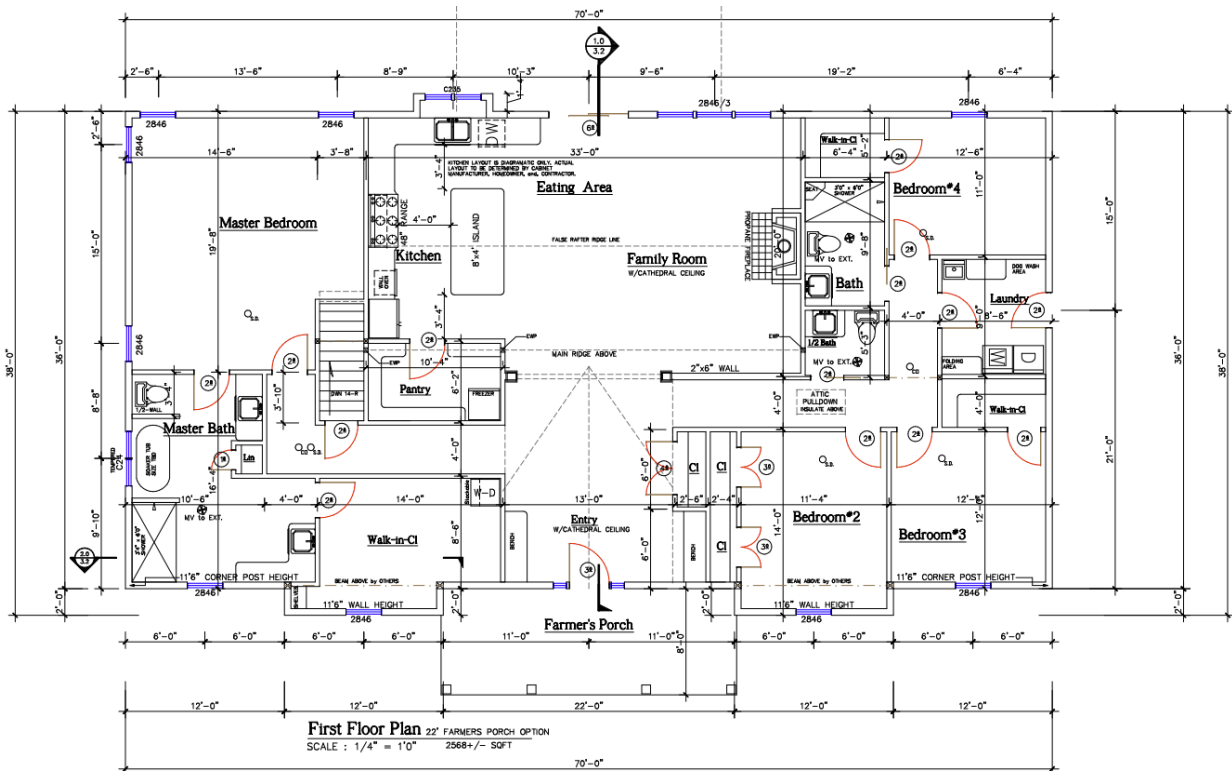
Two lally columns and posts run from the basement up into the rafters of which supports a beam. The estimate assumes the beam to be constructed of 14" LVL's. Expect a cost savings if it's deemed unnecessary.

Roof system to be stick framed as requested by the builder.

Fascia & soffits are assumed to be pre-primed pine that can accept a cedar siding. The drawing shows a vertical siding. The estimate Includes a few options. Consider alternative products for cost savings.

Floor coverings aren't listed in the drawing. The estimate will assume prefinished hardwood flooring and tiled bathrooms. Each room will be anointed for square footage so it can be easily altered if the customer wants different flooring in different rooms.

Insulation is assumed to be fiberglass rolls and batts with plastic sheeting. The estimate will include the square footage for alternate insulation.



Excavation & Foundation:

Drawings show a 24" footing with 10" wall.

Excavation:

Labor - 36 hours @ 175.00 - 6,300.00

Equipment rental -350.00

Misc - 150.00

Footings:

Labor - 10 hours @ 150.00 - 1,500.00

Gravel & fill - 400.00

Crushed stone - 350.00

Footings form wood - (32 - 1x12x16 ledger board) - 640.00

Footings bracing - (8 - 2x4x10) - 96.00

Rebar - (60 - (1/2" 20' rebar) - 810.00

Nails & screws - 75.00

Misc tools - 100.00

Concrete - (18 yards concrete @ 130/yard) - 2,340.00

Drain pipe - (25 - 4"x10' 240') - 350.00

Drain pipe connectors - 50.00

Carrying stick footings:

Labor - 4 hours @ 150.00 - 600.00

Footings form wood - (10 - 1x12x16 ledger board) - 200.00

Footings bracing - (4 - 2x4x10) - 48.00

Concrete - (5.5 yards concrete @ 130/yard) - 715.00

Rebar - (21 - 1/2" 20' rebar) - 284.00

Walls:

Labor - 14 hours @ 150.00 - 2,100.00

Rebar - (50 - 1/2" 20' rebar) - 675.00

Concrete - (57 yards concrete @ 130/yard) - 7,410.00

Misc ties & J Bolts - 200.00

Deck footings:

Labor - 4 hours @ 150.00 - 600.00

Concrete - (1 yard concrete @ 130) - 130.00

Sauna tubes - (4 - 12" x 48") - 56.00

Big foots - (4 - bigfoot forms) - 64.00

String line - 20.00

Slab:

Labor - 9 hours @ 150.00 - 1,350.00

Rebar - (145 - ½" 20') - 1,890.00

Concrete - (33 yards concrete @ 130) - 4,290.00

Materials - 21,693.00

Labor - 12,450.00

Gross - 34,143.00

Framing:

Estimate includes 14" TJI's. Check with the architect or builder to determine if 2x12's can be used for cost savings. Carrying stick is considered to be built in place with LVLs. Family room cathedral ceiling is somewhat confusing. Expect changes during construction. Building inspectors may require additional framing in the roof.

Carrying stick:

3 14" LVLs with GRK fasteners. Pieced together to stagger at the lally.

Labor - 9 hours @ 120 hour - 960.00

LVL -

(3 - 1¾" x 14" 17') - 492.00

(1 - 1¾" x 14" 24') - 231.00

(2 - 1¾" x 14" 20') - 384.00

(3 - 1¾" x 14" 12') - 348.00

(1 - 1¾" x 14" 22') - 212.00

(1 - 1¾" x 14" 30') - 288.00

Fasteners - (5 - 4"-5" GRK Lags 45 count) - 168.00

Lally columns - (6 - 8' concrete filled "dean columns") - 558.00

Framing 1:

Labor - 10 hours @ 120 - 1,200.00

Sill gasket - (6 - 50' 5½" rolls) - 60.00

Sill plate pt - (16 - 2x6x16 PT) - 448.00

Sill plates kd - (16 - 2x6x16 KD) - 432.00

Knee wall kd - (22 - 2x6x8 KD) - 275.00

Knee wall pt - (4 - 2x6x8 PT) - 56.00

Knee wall door header - (3 - 2x8x8) - 51.00

Knee wall sheathing - (6 - 7/16" zip tech plywood) - 366.00

Zip tech tape - (1 - zip tape 90') - 30.00

Framing 2:

Labor - 33 hours @ 135 - 4,455.00

TJI joists (2 ½" x 14");

Back side - (65 - PJI 60 22' | 20' actual distance to stick) - 8,255.00

Front side short - (48 - PJI 60 18' | 16' actual distance to stick) - 4,992.00

Front side long - (20 - PJI 60 20' | 18' actual distance to stick) - 2,080.00

TJI rim joist - (22 - 14" tji rim 12') - 1,144.00

Blocking - (5 - 2x12x16 KD) - 295.00

TJI hangers;

Double hanger - (14 - 5" double hanger) - 154.00

Single hanger - (10 - 2.5" single hanger) - 70.00

Floor sheathing - (85 - ¾" adventec plywood) - 7,999.00

Construction adhesive - (40 tubes liquid nails) - 104.00

Fasteners budget floor - 300.00

Framing 3:

Labor - 6 hours @ 120 - 720.00

Stair system;

Stringers - (4 - 2x12x16) - 236.00

Stringer plate - (1 - 2x10x8 PT) - 24.00

Treads - (7 - 2x12x8) - 207.00
Risers & rim - (2 - ¾" plywood) - 164.00
Stringer hangers - 40.00
Screws;
(1 - 3 ⅛" GRK 240c) - 33.00
(1 - 2 ½" GRK 100c) - 14.00

Framing 4:

Labor - 13 hours @ 135 - 1,755.00

Deck;
Stick - (5 - 2x12x16 pt) - 340.00
Joists - (21 - 2x8x8 pt) - 357.00
Rim joists - (5 - 2x8x16) - 170.00
Hangers - (30 - 2x8 hanger) - 45.00
Screws;
(3 - GRK 4" lag 45c) - 69.00
(2 - GRK 2 ½" 400c) - 78.00
(1 - GRK 3 ⅛" 210c) - 33.00
Decking - (20 - cedar decking 16') - 580.00
Fasteners - 75.00
Stringers - (5 - 2x12x8) - 155.00
Risers - (2 - 1x8x8 cedar) - 46.00
Rim trim - (2 - 1x10x16 cedar) - 164.00
Columns budget - (4 - Sleeve and posts) - 1,000.00

Framing 5:

Labor 64 hours - @ 135 - 8,640.00

Exterior wall studs - (240 - 2x6x10) - 4,080.00
Bottom plates - (14 - 2x6x16) - 392.00
Tops plates - (28 - 2x6x16) - 784.00

Headers;
(3 - ½" plywood sandwich) - 144.00
2846 - (9 - 2x10x8) - 207.00
2846/3 - (3 - 2x12x10) - 96.00
C24 - (1 - 2x10x16) - 45.00
Front door - (3 - 2x10x8) - 69.00
Side door - (1 - 2x10x8) - 23.00
Back door - (3 - 2x10x8) - 69.00

C235 - (3 - 2x6x8) - 36.00
Construction adhesive - (12 - liquid nails) - 36.00
Fasteners - 100.00

Sink window studs - (12 - 2x6x8) - 132.00
Sink window rafters - (5 - 2x8x8) - 60.00
Screws - (1 - GRK 3 1/8" 210c) - 33.00
Window frame ties budget - 75.00

Framing 6:

Labor - 30 hours @ 135 - 4050.00

Interior partitions - (250 - 2x4x10) - 2,750.00
Bottom & top plates - (26 - 2x4x16) - 520.00
Interior partitions header ceiling joist - (1 - 2x8x16) - 38.00
Interior partitions cathedral extension budget - (25 - 2x4x10) - 275.00

Framing 7:

Labor - 114 hours @ 150 - 17,100.00

Ceiling joists;

Front short - (34 - 2x12x18) - 2,278.00
Front long - (12 - 2x12x20) - 732.00
Back - (32 - 2x12x22) - 2,720.00
Bump out - (5 - 2x12x12) - 36.00

Ceiling joist LVL - (4 - 1 3/4" x 11 1/4" bump out 12') - 352.00
Screws - (3 - GRK 3" lag 45c) - 69.00
Hangers - (29 - 2x12 joist hangers) - 87.00
Fasteners - 50.00

Rafters common;

Back - (58 - 2x12x24') - 5,104.00
Front - (48 - 2x12x24') - 4,224.00
Collar ties - (32 - 2x8x16) - 1,152.00
H1 hurricane ties - (110 - diamond hurricane tie) - 108.00
H2.5 Ties - (10 - ties) - 8.00

Rake rafters - (16 - 2x8x16) - 624.00

Roof Ridge - (3 - LVL 1 3/4" x 14" 34') - 924.00

Screws - (5 - 5 1/8" GRK lags 40c) - 163.00
Post budget - (tbd by architect or builder, 2 20' posts) - 300.00
Lally columns - (3 1/2" basement lally columns 10') - 186.00

Cathedral false rafters - (28 - 2x12x12) - 1008.00

False dormers;

Ridge - (2 - 2x12x16) - 108.00
Rafters - (40 - 2x10x16) - 1,800.00
Sleeper rafters - (5 - 2x10x16) - 225.00

Cathedral dormer;

King rafters - (6 - 2x12x24) - 486.00
Header rafter - (3 - 2x12x14) - 135.00
Valley rafters - (8 - 2x12x14) - 360.00
Rafter - (21 - 2x10x14) - 819.00

Framing 8:

Labor - 23 hours @ 150 - 3,450.00

Porch roof;

Porch rafters - (22 - 2x8x10) - 528.00
Porch stick - (3 - 2x10x16) - 135.00
Porch ceiling joists - (22 - 2x6x8) - 242.00
Screws - (3 - GRK 3" lag 45c) - 69.00

Main roof gables - (30 - 2x6x12) - 510.00
False dormer gables large - (24 - 2x6x10) - 372.00
False dormer gables small - (12 - 2x6x8) - 132.00
Cathedral dormer gables - (19 - 2x6x8) - 209.00
Cathedral dormer window header - (3 - 2x8x8) - 51.00

Framing 9:

Labor - 42 hours @ 150 - 6,300.00

Wall sheathing - (116 - 1/2" 4x8 zip tech ply) - 7,076.00
Zip tech tape - (8 - zip tape 90') - 240.00

Roof sheathing - (127 - 5/8" plywood sheathing) - 5,969.00

Window roof system;

Rafters - (18 - 2x8x8) - 288.00

Post - (2 - true 2x6x8 cedar or better) - 120.00

Screws & fasteners - 120.00

Strapping - (174 - 1x3x16) - 1,044.00

Cathedral & roof unforeseen framing budget - 600.00

Unlisted fasteners budget - 400.00

Materials - 85,749.00

Labor - 48,630.00

Gross - 134,379.00

Windows & Doors:

Segment to include setting windows & doors. Interior & exterior trims are in siding/interior finishings segments. Windows of reasonable value but can be expected to double if the customer wants a different window with all wooden sashes.

Labor - 48 hours @ 90 - 4,320.00

Basement windows;

1030 - (5 - 36"x24" basement window vents) - 800.00

First floor windows;

2846 - (9 - 35"x60" Pella 250 series) - 4,050.00

2846 - (1 - 35"x60" each triple rear window Pella 250 series) - 1,650.00

C235 - (1 - 71"x60" sink window double or sliding) - 950.00

C24 - (1 - 24"x60" each double bathroom window) - 700.00

Dormer window;

1832 - (1 - 72"x48" triple window) - 1,200.00

2020 - (2 - octagon window budget) - 900.00

Doors;

Front - (1 - 72"x80" with side windows) - 2,100.00

Side - (1 - 32"x80" side entry tbd laundry) - 400.00

Rear slider - (1 - 72"x80" mp slider) - 1,200.00

Basement slider - (1 - 72"x80" mp slider) - 1,200.00

Fasteners - 75.00

Silicone - (12 - silicone caulk) - 108.00

Shims - (1 bundle - cedar shims) - 35.00
Window tape - (10 - 6"x50' window sealant) - 200.00

Materials - 15,568.00
Labor - 4,320.00
Gross - 19,888.00

Fascias & Soffits:

All fascias are considered to be pre primed 1x8's and all shadow boards are considered to be 1x3's as described in the drawing. Freeze boards, Corner Boards, and window trim will be considered to be 5/4 to accept a cedar siding. Soffits are considered to be 1/2" high grade plywood. Porch & roof bump outs included. Porch ceiling and bump out ceilings included.

Labor - 91 hours @ 120 - 10,920.00

Fascia - (25 - 1x8x16) - 1,125.00
Shadow board - (25 - 1x3x16) - 625.00
Soffits - (18 - 1/2" 4x8 clear ply) - 1,044.00
Freezeboard sofft - (25 - 5/4 x4x16) - 713.00
Freezeboard ground - (13 - 5/4 x10x16) - 850.00
Corner boards - (17 - 5/4 x6x12) - 272.00
Window & door trim;
(34 - 5/4 x4x8) - 408.00
(5 - 5/4 x4x12) - 102.00

Porch & bump out ceiling - (60 - 1x6x8 cedar t&g) - 1,260.00
Fasteners - (3000c) - 175.00

Materials - 6,574.00
Labor - 10,920.00
Gross - 17,494.00

Siding:

Siding segment includes cedar clapboards, vertical cedar siding, and cedar shake comparison. Wall area is approximately 2,500 sq ft. Cedar clapboard noted as the chosen product.

Cedar t&g:

Labor - 96 hours @ 100 - 9,120.00
Vertical cedar - (640 - 11/16"x 5 5/16" t&g siding) - 19,200.00
Gable divider - (6 - 5/4" x6x16 pre primed) - 130.00
Fasteners - (ring shank galvanized) - 150.00

Cedar shake:

Labor - 132 hours @ 100 - 13,200.00
Premium red cedar - (50 boxes @ 50 sq ft) - 14,950.00
White cedar - (100 bundles - wall grade white cedar) - 8,400.00
Fasteners - (ring shank galvanized) - 150.00

**Cedar lapboards:

**Labor - hours 92 @ 100 - 9,200.00

**Cedar clapboards - (320 - 4 1/2"-5 1/2" exposure 16' cedar clapboards) - 11,520.00

**Flashing - (25 packs of 10 - 5"x7" flashings) - 98.00

**Fasteners - 175.00

**Tyvek;

** (2 - 5'x200' tyvek kit) - 1,334.00

** (1 roll - 3'x175') - 75.00

**Staples - 50.00

**Freezeboard drip cap - (24 - 5/4 compatible 10' drip cap) - 120.00

**Misc - 75.00

Materials - 13,447.00

Labor - 9,200.00

Gross - 22,647.00

Roofing:

To include a cricket budget. Rear to consider 2 rows of ice & water shield. Front section to include complete ice & water shield. Metal roofing included on the porch as shown in the plans.

Labor - 6,217.00

Shingles - (112 bundles architectural shingles) - 4,032.00

Starter shingles - (3 bundles starter shingles) - 132.00

Caps - (6 bundles ridge cap shingles) - 360.00

Drip - edge - (30 - 8" galv drip edge) - 330.00

Ice & water shield - (11 rolls) - 1705.00

Underlayment - (2 rolls - felt buster tar paper alternative) - 172.00

Nails - (2 boxes - 1 1/4" coil nails) - 108.00

Tar - (12 tubes roofers choice) - 27.00

Cricket budget - 150.00

Step flashing - (2 bundles - 25c galv pre bent) - 46.00
Metal roofing - (9 - 37"x8' metal roofing) - 675.00
Flashing - (20' Thick gauge flashing) - 50.00
Screws - (3 - 1/4" roofing screws & washers 100c) - 39.00
Eave metal budget - 75.00
Ridge vent - (6 rolls - cobra vent 20') - 318.00

Materials - 8,219.00
Labor - 6,217.00
Gross - 14,436.00

Insulation:

Plans show fiberglass rolls & batts. Segment displays square footage so spray foam or blown insulation can be considered by the builder as an alternative.

Labor - 64 hours @ 100 - 6400.00

Floor [2550 sq ft] - (43 bundles - Faced R30) - 3,139.00
Exterior walls 1st floor [1750 sq ft] - (36 rolls - faced R21) - 1,368.00
Ceilings [3000 sq ft] - (63 bundles - Faced R49) - 6,363
Interior partitions [2,250 sq ft] - (58 rolls - faced R13 2x4 walls) - 1,508.00
Plastic sheeting - (10 rolls - 10'x25' 6 mill) - 320.00
Staples & fasteners - 100.00
Misc - (gloves, masks) - 200.00

Materials - 12,998.00
Labor - 6,400.00
Gross - 19,398.00

Drywall:

Segment doesn't include basement work. Consider using pipe staging in the family room with a drywall jack for installation.

Labor - 72 hours @ 120 - 8,640.00

Drywall - (212 - 1/2" 4x8x12) - 4,240.00
Screws - (- 1 1/4" drywall screw 8000c) - 70.00
Joint compound - (30 bags - 45 minutes setting compound) - 330.00
Misc - 150.00
Corner pieces - (22 - metal corner bead 10') - 88.00
Equipment rental - 600.00

Materials - 5,478.00
Labor - 8,640.00
Gross - 14,118.00

Interior Painting:

Labor - 130 hours @ 100 - 13,000.00

Considers one coat primer & two coats wall & trim.

Primer - (5 - 5 gallon kilz primer) - 430.00
Wall paint - (8 - 5 gallon Sherwin harmony) - 2,136.00
Ceiling - paint - (2 - 5 gallon Sherwin eminence) - 296.00
Trim paint - (1 - 5 gallon Sherwin pro classic) - 316.00
Tapes - 100.00
Rollers & misc - 250.00

Materials - 3,528.00
Labor - 13,000.00
Gross - 16,528.00

Interior finishings & doors:

Includes standard 3 $\frac{1}{4}$ " window and door casing with colonial $\frac{1}{2}$ "x5 $\frac{1}{4}$ " baseboard. Estimate considers doors not having trim.

Labor - 128 hours @ 120 - 15,360.00

Baseboard - (8 - colonial base 5-pack 16' each) - 1048.00
Window & door - (109 - colonial casing 8') - 1308.00
Window extension jambs - (27 - 1x6x8) - 360.00
Bi fold door opening jambs - (10 - 1x8x8) - 320.00
Fasteners - 175.00

Bench seat slabs - (2 - 24"x72" birch) - 420.00
Kitchen trim budget - 250.00

Pantry shelving budet - (poplar shelvings & blockings) - 450.00
Linen closet shelving budget - (poplar shelvings & blocking) - 150.00

Bedroom shelving budget - (3 bedroom 1 entry) - 450.00

Interior doors - (11 - jeld wen solid pre hung) - 2904.00
Door handles - (11 handles) - 220.00
Front & side entry handles - (2 entry) - 140.00

Bi fold doors;

(2 - 24" entry solid bi fold doors) - 286.00
(2 - 32" bedroom solid bi fold doors) - 328.00
(1 - 18" linen door) -

Bi fold track kits;

(1 - 48" kit) - 18.00
(2 - 32" kit) - 34.00
(1 - 18" kit) - 15.00

Misc fasteners -

Materials - 8,876.00

Labor - 15,360.00

Gross - 24,236.00

Flooring:

Segment includes pre finished hardwood in all rooms and closets. Bathrooms are considered tile with tiled showers. Laundry room is considered tile.

Family room & hallway - 1,145 sq ft.

Master bedroom - 350 sq ft.

Bedroom 2 - 195 sq ft.

Bedroom 3 - 185 sq ft.

Bedroom 4 - 175.00

Master Bath - 198 sq ft.

Walk in closet - 150 sq ft.

Half bath - 35 sq ft.

Bathroom 2 - 65 sq ft.

Laundry - 78 sq ft.

Hardwood:

Labor - 48 hours @ 130 - 7,020.00

Pre finished hardwood flooring - (95 boxes - (oak @ 4.50/ sq ft.) - 10,070.00

Flooring underlayment - (11 rolls - Roberts moisture underlayment) - 176.00

Fasteners - (12 boxes - flooring nails) - 230.00

Tile:

Labor - 52 hours @ 130 - 6,760.00

Tile - (726 tiles - porcelain or ceramic @ 2.5) - 1,452.00

Concrete board - (50 - 1/2" 5x3 concrete board) - 500.00

Screws - (8 cases - 1 1/4" concrete screw 185c) - 88.00

Mortar - (3 bags - 50lb bag thinset) - 27.00

Misc framing budget - 200.00

Stone - (stone seat budget) - 250.00

Decorative tile budget - 200.00

Grout - (4 bags - grouts) - 58.00

Grout seal - (2 spray bottles) - 62.00

Spacers - 50.00

Sponges & misc - 100.00

Materials - 13,363.00

Labor - 13,780.00

Gross - 27,143.00

Bathrooms:

Bathroom showers to consider glass doors. Vanity and toilet of reasonable value. Laundry room items to be included in this segment.

Labor - 41 hours @ 90 - 3,690.00

Master bath;

Vanity - (54" vanity with counter & sink) - 1500.00

Toilet - (Kohler 2 piece) - 200.00

Vanity 2 - (48" with counter & sink) - 900.00

Tub unit - (Jacuzzi tub unit) - 800.00

Glass shower - (60"x78" glass door) - 820.00

Bathroom exhaust fan - (Nutone 130 cfm exhaust fan & light) - 194.00

Misc fixtures budget - 350.00

Bathroom 2;

Vanity - (36" with top and sink) - 700.00

Glass shower - (60"x76" glass door) - 820.00

Toilet - (Kohler 2 piece) - 200.00

Misc fixtures budget 250.00

Exhaust fan - (80 cfm with light) - 117.00

Half bath;

Vanity - (24" vanity with top and sink) - 625.00
Toilet - (Kohler 2 piece) - 200.00
Misc fixtures budget - 250.00
Exhaust fan - (80 cfm with light) - 117.00

Laundry room;
Laundry sink - (24" laundry vanity and sink) - 215.00

Materials - 8,258.00
Labor - 3,690.00
Gross - 11,948.00

Kitchen:

Approximately 20' of countertop. Island unit described as 8'x4'. Because no schematic is provided a budget for the cabinets will be estimated of reasonable value.

Labor - 26 hours @ 120 - 3,120.00

Granite countertop - (approximately 60 sq ft. @ 40) - 2,400.00
Island countertop - (approximately 40 sq ft. @ 40) - 1,280.00
Cabinets uppers and lowers budget - 7,500.00
Kitchen sink - (glacier bay 33" all in one sink) - 335.00
Cabinet screws & fasteners - 175.00

Materials - 11,690.00
Labor - 3,120.00
Gross - 14,810.00

Exterior painting:

Two coats trim & body.

Labor - 125 hours @ 90 - 11,250.00

Exterior - (17 gallons - aura benjamin moore) - 1,530.00
Trim paint - (6 gallons - aura benjamin moore) - 540.00
Misc - 175.00

Materials - 2,245.00
Labor - 12,250.00
Gross - 13,495.00

Misc:

Recommended expenditures.

Man lift rental - (2 months) - 6,178.00

Toilet - (3 month) - 390.00

Dumpster - 700.00

Gross - 7,268.00

Summary:

Excavation & foundation: 34,143.00

Framing: 134,379.00

Windows & doors: 19,888.00

Fascia & soffits: 17,494.00

Siding: 22,647.00

Roofing: 14,436.00

Insulation: 19,398.00

Drywall: 14,118.00

Interior painting: 16,528.00

Interior finishings: 24,236.00

Flooring: 27,143.00

Bathrooms: 11,948.00

Kitchen: 14,810.00

Exterior painting: 14,495.00

Misc: 7,268.00

Gross: 393,001.00

Concluded comments:

Savings can be found by reducing the price of flooring and shopping for different siding. If the architect or floor designer determines the joists can be 2x12s or a smaller tji it will provide additional savings. The price for framing the ceilings and roof system feels heavy but can be expected because of the size of the rafters and cathedral dormer. Expect a discount for materials after bulk order. If the concluded price can be contained between 350k-400k the homeowner will have immediate equity and is marketable. The estimate does not include the chimney, electrical, or plumbing.

https://hw.menardc.com/main/items/media/EACOM001/Prod_Tech_Spec/EACOM_P3-Joist_Us er_Guide_US-AN_2021v9.pdf

<https://www.fp-supply.com/st-louis-trusjoist-tji-i-joists.html>

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