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| **FLORIDA BUILDING CODE BUILT HOME vs. MCHFH HOPE LANDING BUILT HOME**  **ENERGY EFFICIENCY & SUSTAINABILIY COST COMPARISON** |

Manatee County Habitat for Humanity currently is building our Hope Landing development to provide energy efficient, sustainable and safe homes for the families we serve. We have certified some of the homes to meet Energy Star 3.1, Florida Green Build Coalition Gold Certification and United State Green Build Coalition Gold Certification standards. One house has been certified to meet the new more stringent US Department of Energy Challenge Home Certification whose construction requirements will now be incorporated in the others we will be building. This comparison is to look at the extra cost of building a house in Hope Landing that was certified to Challenge Home compared to the cost of a house that would just meet current Florida Building Code standards. Categories are broken down by major cost centers we track during our construction. The differences in costs normally improve the home in all three design criteria areas but the costs have been shown in either energy efficiency or sustainability columns.

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| **CATEGORIES** |  | **Energy Efficiency** | **Sustainability** |
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| **Foundation** | Only two issues here in Florida over code - one is larger 5 foot to 10 foot overlap of plastic (no real cost difference) and the second is self-leveling crack filler around all slap penetration (air quality).  Two tubes x $7.20 = $ 14.40  **Additional for Hope Landing Home:** | **$14.40** | **$0** |
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| **Exterior Wall** | **Wood Framed Home:**  Foam seal Rolls 50’ 2 x 4.47 =$8.94  Bottom Plates PT 2x4x10-2 x 4.56 = $9.12  Bottom Plates PT 2x4x16 – 5 x 7.94 =$37.70  Double Top Plate 2x4x10 4 x 4.38 =$17.52  Double Top Plate 2x4x16 – 10 x 7.58 =$75.80  Wall Studs 2x4x 92 5/8 – 100 x 2.92 =$292.00  16d HDG Nails by the box – 1 x 52.93 =$52.93  Simpson Titan screws (Box 20) – 5 x 66.99 =$334.95  Simpson SP1 - 73 x 1.76 =$128.48  Simpson H-10 - 48 x 2.28 =$109.44  Simpson Corners - 2 x 2.25 = $4.50  Simpson nails - 1 x 99.95 =$99.95  Simpson hold-downs - 2 x 39.95 =$79.90  ½” plywood 24 sheets x 18.65 =$447.60  8d HDG nails 1 box x 81.59 =$81.59  House wrap (150’ 1 x 160.00 =$160.00  Plastic cap nails 1 box x 25.98 =$25.98  R-13 wall batt insulation 7 bags x 46.03 =$322.21  Staples 1 box 8.49 = 8.49  **Total $2,297.02**  **ICF Block Home:**  U-channel (100’ aluminum bent flat stock) $14.00  Shot/fasteners $16.20  ICF Blocks (160 S. & 12 C. & freight) $1,876.09  Rebar (2/3 bundle) $467.95  Plastic Ties $12.50  Window/door buck lumber $290.65  Lag screws ½” x 6”-64 x 1.18 =$75.52  Concrete (14 yds.) $1,185.75  Concrete labor and pumper truck $387.50  Simpson MGT 2 X 39.99 =$79.98  Bolts ½” x 6” 2 x 2.11 =$4.22  Simpson HETA20 (Need 96/Box 100) $88.22  PVC ¾”x1¼”x2”x3”x4” (wall penetrations) $24.00  Spray foam adhesive 4 x 6.02 = $24.08  **Total $4,546.66**    **Additional for Hope Landing Home:** | **$2,249.64** | **$0.00** |
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| **Exterior Finish** | The soffit, fascia, corners and trim could be the same using the construction practices we have built with in the past for both types of house. The big difference would be in the siding panels.  **Florida Building Code Home**  Vinyl Siding is the same material nationwide. It has a life-time warranty that is prorated. Vinyl siding has about a 12 year life in the Florida sun until it becomes brittle and faded. From experience the warranty reimbursement is every little by this time.  1 box roofing nails x 33.92 =$33.92  8 sq. x $78.00 per sq. = 624.00  **Total $657.32**  **Hope Landing Home**  HardiePlank fiber cement lap siding is enhanced to address the climate trends for our Florida conditions. It has a 30-year non-prorated warranty that is transferable.  1 box self-sinker weather resistant screws x 129.00 = $129.00  130 planks x $6.32 = 818.44  **Total $947.44**  **Additional for Hope Landing Home:** | **$0.00** | **$290.12** |
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| **Windows**  **Exterior Doors** | **Florida Building Code Home**  Aluminum, single-hung, duel-glazed, non-impact glass, non-Energy Star, with U-factor of 0.54 & SHGC of 0.31 4 – 4 x SH-25 & 1 x SH22  Bid: $ 583.00  **Hope Landing Home**  Vinyl, single-hung, duel-glazed, non-impact glass, low-E, Argon gas filled, Energy Star Southern with U-factor of 0.30 & SHGC of 0.22 – 4 x BLVFSH-25 & 1 x BLVFSH22 **Bid: $1,066.53**  **Additional for Hope Landing Home:**  **Florida Building Code Home**  Basic Econo-Steel, insulated, 6-panel, double-bore, pre-hung outswing door in wood jamb with standard 1½” raise metal threshold 2 x 116.00 =  **The two doors are $232.00**  **Hope Landing Home**  Premium fiberglass, insulated Energy Star, 6-panel, double-bore, pre-hung outswing door in fiberglass jambs (no riot). Front door with bottom swipe has ADA threshold (less then ¾” raise) and rear door has 1” raise metal threshold. **Custom Built bid price $341.84**    **Additional for Hope Landing Home:** | **$483.53**    **$0.00** | **$0.00**  **$109.84** |
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| **Roofing** | **Florida Building Code Home Roof**  5/8” plywood - 65 sheets x $22.50 =$1,462.50  5/8” plywood clips - 1 box x 49.95 = $49.95  10d ring-shank nails - 1 box x 50.00 = $50.00  15w roof felt - 9 rolls x 34.91 = $314.19  Plastic cap nails - 1 box x 25.98 = $25.98  **Sheathing Sub-Total $1,902.62**    Asphalt 3-tap shingles – 54 bundles x 22.74 = 1,227.96  (3-tap – $22.74 Vs. architectural – $32.50 per bundle)  Roofing nails - 1 box x 33.92 = $33.92  **Total roof $3,164.50**  **Hope Landing Home**  5/8” Zip panels & tape Bid Price 1,456.09  10d ring-shank nails - 1 box x 50.00 = 50.00  Sheathing Sub-Total 1,506.09  5V Galvalume panels, trim gaskets and fasteners - Bid Price = 2,405.00  **Total roof $3,911.09**  **Additional for Hope Landing Home:** | **$0.00** | **$746.59** |
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| **Insulation - Attic** | **Florida Building Code Home**  **R-19** Owens Corning Atticat Loose Fill Blown-In Insulation.  (R-19 is $426.48 & R-30 is $534.24) **By bid price: $426.48**  **Hope Landing Home**  **R-21** Certaspray open-cell foam insulation at 5½” provides insulation value and air-sealing in a single step. **By bid price: $1,552.00**  (Manufacturers say you get increased insulation value when on the underside of the roof and you get a conditioned space in the attic. R-30 spray foam would add another $835.00 to the cost of insulation.)  **Additional for Hope Landing Home:** | **$1,125.52** | **$0.00** |
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| **Interior Walls** | There are no real cost differential between wooden interior wall construction methods we would use in either home. We use our scrap materials and Advance Framing Techniques to provide:  Ladder cross blocking for corners tie-ins  Two stud corners  “California” headers over all interior doors  Cabinet, shelving and bath hardware blocking  Door knob wall bracing (prevents dry wall damage)  We add batt insulation into the Utility room to Master Bedroom wall and the hall bathroom side walls adjacent to both front bedrooms for sound deadening. **1½ Bags x 46.03 = $ 69.05**  **Additional for Hope Landing Home:** | **$0.00**  **$0.00** | **$0.00**  **$69.05** |
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| **HVAC** | **Florida Building Code Home**  11/2 Ton 13 SEER non-Energy Star conventional system with same duct work, no outside make-up/ventilation air, and non- Energy Star bath fans. Meets FL Building Codes Standards. **Bid Price: $5,109.50**  **Hope Landing Home**  Mitsubishi Electric Mr. Slim .3 to 1.2 Ton, 16 to 23 SEER, Energy Star, Mini-Split system with invertor technology, variable speed fan and variable speed compressor. Air distribution through pancake fan/condenser feeding distribution to R-6 duct work all in conditioned space. Make-up fresh air through 6” filtered duct in the soffit and controlled by manual/motorized dampener. Both bathroom fans are Energy Star ducted to the outside under the soffit. Kitchen vent fan is ducted through roof. **Bid Price: $5,067.50**  **Amount less for Hope Landing Home:** | **($42.00)** | **$0.00** |
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| **Plumbing Systems** | Require all piping is to be insulated.  Shortened pipe runs for hot water to <.5 gal. - changed from overhead to in slab reducing material usage.  We use all low-flow fixtures that were donated by Kohler that meets Water Sense standards. We would have used them in either type of home constructed.  **Florida Building Code Home**  12-year 50 gal. standard electric water heater installed-  **Bid Price $709.00**  **Hope Landing Home**  Solar water heating system - 80 gal. drainback system installed –  **Bid Price $4,860.00**  Florida Power & Light reimburses us 100%. The cost differential has been included even though it would be at no cost to us.  **Additional for Hope Landing Home:** | **$ 0.00**  **$ 0.00**  **$ 0.00**    **$4,151.00**  **(NO COST FOR MCHFH)** | **$ 0.00**  **$ 0.00**  **$ 0.00**  **$0.00** |
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| **Electrical Systems** | Base cost of electrical system cost would be unchanged if not slightly lower because of lower rated electrical devices being used.  PV ready home – conduit run from CB panel into attic (no charge adder by contractor)  **Florida Building Code Home**  Contractor Grade fans w/lights - 3 x 41.95 = $125.85    **Hope Landing Home**  Energy Star fans w/lights - 3 x 99.95 = $299.95  **Additional for Hope Landing Home Fans:**  All CFL bulbs (estimate of difference)  All appliances are Energy Star and they are donated through a gift-in-kind program from Whirlpool. However, Energy Star appliances can be purchased for about the same price as regular ones through hard shopping and discounts. | **$ .00**  **$ 174.10**  **$66.00**    **$0.00** | **$ 0.00**  **$ 0.00**  **$ 0.00**    **$ 0.00** |
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| **Drywall** | All wall and ceil penetrations are to be sealed – tubes of caulk –  4 tubes x $2.28 = $ 9.12  Top of dry wall to top plates are sealed - tubes of caulk –  8 tubes x $2.28 = $ 18.24 | **$9.12**    **$18.24** | **$0.00**  **$0.00** |
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| **Cabinetry & Counter** | We have purchased cabinets from a local wholesale manufacturer for more then four years. They meet material standards under the Challenge Home requirements. No cost differential between construction methods would be realized. | **$0.00** | **$0.00** |
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| **Floor Covering** | We are using all hard surface flooring in our houses now. This is a change from the carpet and roll vinyl we used in the past that we paid to be installed. Our volunteers now do the work saving us the installation costs but we would do this for either method of construction. | **$0.00** | **$0.00** |
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| **Interior Trim** | All trim moldings are solid wood and doors meet material standards. Closet shelving is metal. Bathroom hardware, Medicine cabinets, mirrors, and door hardware are all solid wood, metal or plastic. No cost differential between construction methods would be realized. | **$0.00** | **$0.00** |
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| **Interior Finish** | All low or NO VOC products were used. Habitat receives <50 g/L VOC paints from Valspar through our Gift-in-Kind program. All caulks and adhesives used in the construction of the houses are low VOC. However, it is possible to find the low VOC products at the same cost of ordinary one. No cost differential between construction methods would be realized. | **$0.00** | **$0.00** |
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| **Lot Improvements** | This is driveways, sidewalks, sod and landscape. We use South Coast Florida Native Plants without irrigation. Some houses have rain barrels (we offer for $50.00) with soaker hoses to water plantings. We use Bahia glass for drought tolerance and poor soil growth ability. No cost differential between construction methods. | **$0.00** | **$0.00** |
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| **Jobsite Facilities** | We use a four dumpster recycling system (General waste, cardboard, metal, plastic) to sort waste into. We were able to cut our waste but more then 25% through designing the house so it uses the size of the ICF so no cuts are required to layout the house and preparing material lists that order specific size material for every task. We now pay for only the general waste removal weight and the recycle materials pays for the dumpsters to be on site and their waste removal. This has caused a reduction in waste removal costs for previous methods of all waste in one dumpster. Hard to put a cost of what the saving are but it has been no extra cost to recycle. | **$0.00** | **$0.00** |
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| **Project Fees** | No change - we actually have received $140.00 from FPL and on some $4,000.00 from HD-HFHI Sustainability Program in the past for certifying energy efficient construction. | **$140.00** | **$0.00** |
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| **Consumables** | These are items and materials that are used and disposed of that may or may not be outside of one of the other categories. .No cost differential between two types of house construction methods | **$0.00** | **$0.00** |
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| **Contingencies** | Certification fees vary greatly by what which and how many certifications you chose to achieve. Fees also vary between raters for their work and the testing they do. The cost to Habitat to certify a LEED or Challenge Home with other certifications costs about –  We received a FPL reservation for a 10KW system at the allowance of $2.00 per KW. We split that system over two houses for a 2.5 KW system with a rebate from FPL of $5,082.43 for each house. The two systems were installed on houses already closed and no planning for addition of a PV system so the cost was $5,898.98 for each install. However, with doing the install at time of construction or even after the house is sold as long as the conduit is run to allow access to the CB panel, you should be able to install the PV system for close to the $2.00 per watt of the system. | **$2,600.00**      **$5,082.43**  **(NO COST FOR MCHFH)** | **$ 0.00**  **$0.00** |
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| **Grand Totals** | Addition Cost for Hope Landing Challenge Home Vs. Florida Building Code Home | **$15,791.98** | **$1,215.60** |
|  | Less reimbursements from FPL  (Solar Water Heater $ 4,151.00 & PV System $ 5,082.43) | $9,233.43 |  |
|  | Habitats extra cost for efficient Hope Landing Homes | **$6,558.55** |  |
|  | Cost of Hope Landing Home more then Florida Building Code Home  (Energy Efficiency $ 6,558.55 + Sustainability $ 1,215.60) |  | **$7,773.55** |