



FAITHFUL+GOULD
FOR
**PACIFIC NORTHWEST
NATIONAL LABORATORY**

Residential Energy Efficiency Measures

Prototype Estimate and Cost Data

Revision 6.0

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1. Introduction and Purpose

- 1.1. Faithful+Gould has been retained by Pacific Northwest National Laboratory (PNNL) as described in the Statement of Work; Work Order 1, to provide cost data for installation of various energy efficiency measures in new low-rise residential buildings. The Work Order requests cost data in the form of deliverables for Sub-Tasks 1 to 6. Subtasks 1 to 3 deliverables were subject to a 19th August 2011 submission date, with the remaining submitted in the Report, dated 20th September 2011. Updates to data submitted on 19th August and 20th September 2011 are included in this Report. Unit rates contained within this Report are reflective of 4th Quarter, 2011.
 - 1.1.1. Subtask 1: Prototype Home Estimate and Cost Database for Various Published Codes/Standards Descriptions and Preliminary Data for the 2009 IECC
 - 1.1.2. Subtask 2: Cost Data Collection for 50% Better Code Development Description
 - 1.1.3. Subtask 3: Raw Data submitted in comma-delimited format
 - 1.1.4. Subtask 4: Prototype Home Estimate and Cost Database for Various Published Codes/Standards Descriptions and Preliminary Data for the 2006 and 2012 IECC
 - 1.1.5. Subtask 5: Report on Data Additional to Subtask 2
 - 1.1.6. Subtask 6: Raw Data submitted in comma-delimited format
- 1.2. This exercise supports PNNL's initiative to develop the Building Component Cost Community Tool (BC3), designed to assist cost estimators, builders, architects and engineers to evaluate potential cost of energy efficient components. The tool will also serve as a central DoE repository for neutral cost data tied to buildings at component level.
- 1.3. The content of this Report does not include data for commercial buildings. The Statement of Work for Commercial Buildings is expected to be included in a future Work Order.

2. Subtask 1: Prototype Home Estimate, Cost Database and Preliminary Data for the 2009 IECC

2.1 OVERVIEW

- 2.1.1. The report on Subtask 1 contains the following sub-headings
 - 2.1.1.1. Approach to Data Collection
 - 2.1.1.2. Prototype Home Estimating Methodology and Approach
 - 2.1.1.3. Estimated Cost for Prototype Single-Family Home (Baseline Cost)
 - 2.1.1.4. Prototype Home Alternates Analysis
 - 2.1.1.5. Applied Geo-Cost Modifiers for Locations within Each Climate Zone
 - 2.1.1.6. Preliminary Data for the 2009 IECC
 - 2.1.1.7. Cost Database for Various Published Codes/Standards Descriptions

2.2 APPROACH TO DATA COLLECTION

- 2.2.1 To perform credible cost comparisons for improved energy components it is important to establish a consistent scope baseline. This basis has been guided by the characteristics outlined in the Work Order. To align as close as possible to these parameters we have used the actual design of a single family home constructed in 1997 and based in Climate Zone 6. The intent is to accurately capture a baseline cost to undertake national comparisons for both geo-modifiers and climate related energy efficiency code variances
- 2.2.2 From this prototype home we have applied industry standard measurement techniques and have estimated probable costs using RS Means 2011 as the main reference point for labor productivity. Material costs have been arrived from various sources, including manufacturers' quotes, internal data and other sources as applicable.

2.3 PROTOTYPE HOME ESTIMATING METHODOLOGY AND APPROACH

- 2.3.1 The following section describes the general estimating approach and methodology for the Prototype (Baseline Cost).

2.3.2 PROJECT WORK BREAKDOWN STRUCTURE

- 2.3.2.1 Faithful+Gould has recommended to PNNL, the Unifomat II cost coding structure for this project. This is an industry standard and widely recognized work breakdown structure that identifies project components in the form of an 'elemental' breakdown. The Prototype Estimate has been coded in accordance with Unifomat II. Further information can be found at www.unifomat.com

2.3.3 ESTIMATE ACCURACY

- 2.3.3.1 This estimate currently falls under the ACE definition of a Class 1 Estimate. Class 1 Estimates are based upon a range of 50% to 100% Project Definition and are prepared to form the basis of Study or Feasibility. Class 1 Estimates have an expected accuracy range on the low side of -3% to -10% and +3% to +15% on the high side, at a 90% confidence level. The expected accuracy ranges vary depending upon the technological complexity of the project. Based upon a high level feasibility scope, this estimate is approximately at the mid-point of the range and is therefore expected to have an accuracy range of -10% to +10%. This accuracy range represents an 'Opinion of Probable Construction Cost'.

2.3.4 BASIS OF PRICING

- 2.3.4.1 Pricing to obtain baseline cost reflects probable construction costs for 1st quarter 2011 and is based on a nationwide average². Actual pricing may vary by geographical region, locality, micro-economic conditions, quantity of materials purchased, sales tax, union versus non-union labor etc. Pricing notes have been provided for the Prototype Estimate in Appendix A and the cost data collection included in Appendices C and E.
- 2.3.4.2 General Contractor's General Conditions, Overhead and Profit are included and calculated at 11%
- 2.3.4.3 A pricing contingency of 2.5% has been included in the total estimate as an allowance.

2.3.4.4 Escalation is included at 0.52%, based on 2.5% per annum, to the construction midpoint based on a four month theoretical schedule in summer of 2012.

2.3.5 DRAWINGS AND SPECIFICATIONS

2.3.5.1 The Estimate for the Prototype Home has been guided by the Single-Family Characteristics as described in the Work Order and is varied where appropriate based upon the design included in Appendix B of this Report. The attached design has been used for the baseline take-off and quantification.

2.3.5.2 Table 2.3 shown below compares the characteristics outlined in the Work Order with that of the Baseline Cost Model.

Table 2.3 Comparison of Prototype Home Characteristics

Parameter	Work Order Assumption Characteristics	Prototype Cost Model Characteristics
Conditioned Floor Area	2,400sf	2,418sf
Footprint and Height	30ft by 40ft, two storey, 8.5ft high ceilings	24ft by 40ft, two storey, plus 20ft x 24ft third storey, 8.2ft high ceilings
Area above unconditioned space (over a vented crawl space or unconditioned basement)	1,200sf	960sf (see alternate foundation types)
Area below roof/ceilings	1,200sf, 70% with attic, 30% cathedral	960sf, 50% with attic, 50% cathedral
Perimeter Length	140ft	128lf (excluding garage)
Gross Wall Area	2,380sf	2,525sf
Window Area (relative to gross wall area)	15% (357sf)	15% (379sf)
Door Area	42sf	40sf (excluding garage doors)
Net Wall Area	1,981sf	2,106sf
Internal Gains	91,346 Btu/day	Unknown
Heating System	Natural Gas Furnace. 78 AFUE	Natural Gas Furnace. 78 AFUE
Cooling System	Central AC, 13 SEER	Central AC, 13 SEER
Water Heating	Natural Gas	Natural Gas

2.4 PROTOTYPE HOME ESTIMATE AND ALTERNATES ANALYSIS

2.4.1 The detailed baseline Prototype Home Estimate is included in Appendix A to this Report. Further to this and in accordance with the requirements of Subtask 1, Faithful+Gould has completed cost estimates of the Prototype Home with five different foundation types. These foundation types are as follows:

2.4.1.1 Vented Crawlspace

- 2.4.1.2 Unvented (conditioned) crawlspace
- 2.4.1.3 Slab-on-grade
- 2.4.1.4 Heated basement with wall insulation
- 2.4.1.5 Unheated basement with insulation in the floor above the basement

2.4.2 The alternate cost of the Prototype Home Estimate with each foundation type is summarized below. The cost detail associated with each estimate is provided in Appendix A to this report.

Table 2.4.2 Cost Summary of Prototype Home by Foundation Type

SYSTEM	SYSTEM DESCRIPTION	Slab-on-Grade	Unvented Crawlspace	Vented Crawlspace	Unheated Basement	Heated Basement
A10	FOUNDATIONS	17,346	11,264	11,079	14,394	14,394
A20	BASEMENT CONSTRUCTION	-	4,322	4,092	7,914	10,110
B10	SUPERSTRUCTURE	15,739	21,906	22,991	22,991	21,906
B20	EXTERIOR CLOSURE	49,155	49,155	49,407	56,741	56,741
B30	ROOFING	6,486	6,486	6,486	6,486	6,486
C10	INTERIOR CONSTRUCTION	23,922	23,922	23,922	25,138	25,138
C20	STAIRCASES	2,638	2,638	2,638	3,581	3,581
C30	INTERIOR FINISHES	10,362	10,362	10,362	10,444	10,690
D10	CONVEYING SYSTEMS	-	-	-	-	-
D20	PLUMBING	11,777	11,777	11,777	12,058	12,058
D30	HVAC	13,688	14,214	13,688	13,969	14,522
D40	FIRE PROTECTION	-	-	-	-	-
D50	ELECTRICAL	12,126	12,189	12,126	12,289	12,451
E10	EQUIPMENT	4,354	4,354	4,354	4,354	4,354
E20	FURNISHINGS	-	-	-	-	-
F10	SPECIAL CONSTRUCTION	-	-	-	-	-
F20	SELECTIVE BUILDING DEMOLITION	-	-	-	-	-
G	SITE PREP/DEVELOPMENT	7,196	7,196	7,196	7,196	7,196
TOTAL DIRECT COST (Trade Costs)		174,790	179,787	180,119	197,555	199,628
MARK UP						
	General Contractor GC's/Mark-ups	19,227	19,777	19,813	21,731	21,959
SUBTOTAL CONSTRUCTION		194,017	199,564	199,932	219,286	221,587
CONTINGENCIES/ESCALATION						
	Design & Pricing Contingency	4,370	4,495	4,503	4,939	4,991
	Escalation	1,017	1,046	1,048	1,149	1,161
TOTAL CONSTRUCTION COST		199,403	205,104	205,483	225,374	227,738
TOTAL \$ /GSF		82.47	84.82	84.98	93.21	94.18

2.4.3 In addition to Table 2.4.2, the cost impact of a required increase in R-value of exterior wall assemblies has been examined, where the increase directly impacts framing size due to the consequential thickness change in insulation.

For example, the increased the R-value for Wood Frame Walls from R-13 to R-21 impacts the thickness of insulation of approximately 3.5" to 6.5" and hence the required framing size. The cost analysis summarizes this impact in terms of cost per square foot of the total exterior wall assembly and the likely total construction cost impact based upon the Prototype Home design. The analysis considers an increase of stud spacing from 16" on centers to 24" on centers where the framing size adjusts from 2"x4" to 2"x6".

Figure 2.4.3.1 below illustrates the impact in terms of cost per square foot of the assembly.

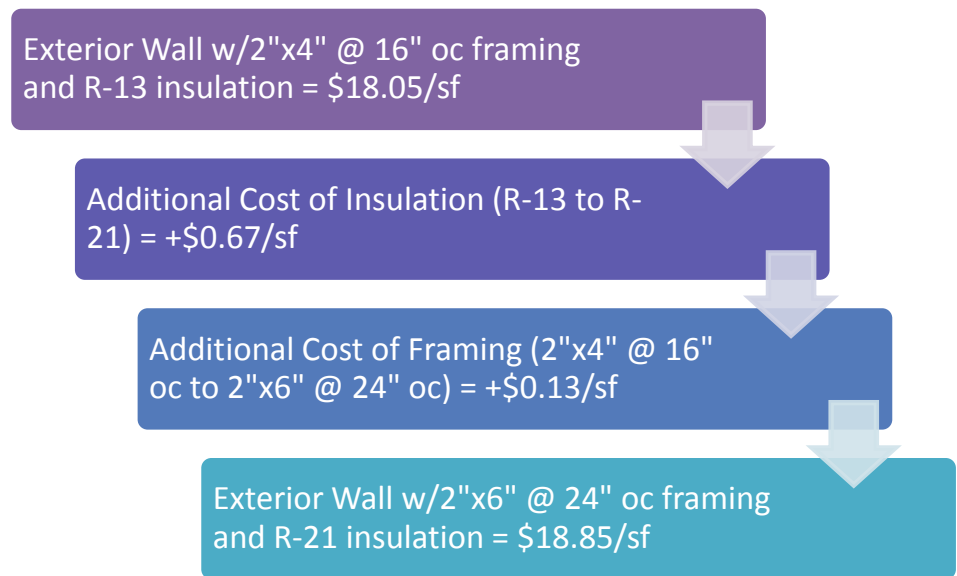


Figure 2.4.3.1 cost/sf Exterior Wall Code Impact

Figure 2.4.3.2 below is an illustration of the potential total cost impact, as applied to the Prototype Cost Model. In these illustrated costs, all other components are a constant. In comparison the cost of R-21 with 2x6" framing at 16" oc is estimated to be \$18.85/sf.

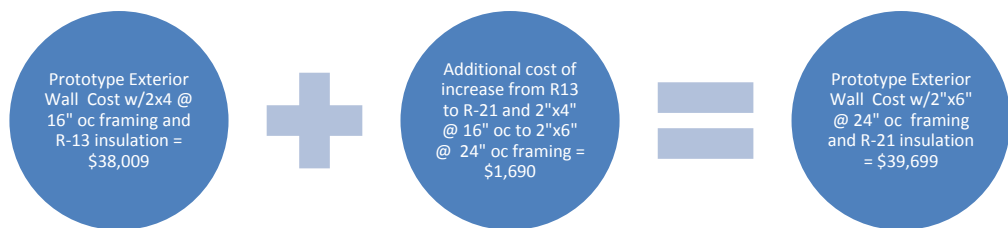


Figure 2.4.3.2 Total Cost Impact on Exterior Wall

Appendix D details the individual costs and quantities of the various components that are included in the analysis (Table 2.4.3.2). This Appendix includes cost estimates for additional assembly configurations, including those for Wood Frame Walls shown in the table in Section 5 below.

2.5 PRELIMINARY DATA FOR THE 2009 IECC

- 2.5.1 The cost data compiled for energy efficiency codes is based upon the minimum requirements stated in Chapter 4 (Residential Energy Efficiency) of the 2009 IECC (International Energy Conservation Code).
- 2.5.2 Summary cost data with code specific parameters for each Climate Zone are shown in Table 2.5 below.

Table 2.5 Preliminary Data for Prototype Costs by Climate Zone

Category	Wood Frame Wall R-Value (Cost Model)	Wood Frame Wall R-Value (2009 IECC)	Ceiling R-Value (Cost Model)	Ceiling R-Value (2009 IECC)	Fenestration U-Value (Cost Model)	Fenestration U-Value (2009 IECC)	*Exterior Wall Assembly (\$ per sf of exterior wall area)	*†Roof Construction Assembly (\$ per sf of roof area)	*Fenestration (\$ per sf of fenestration area)	*Total Estimated Construction Cost of Prototype Home
Prototype - Heated Basement	**19	n/a	44	n/a	n/a	n/a	\$ 18.30	\$ 6.60	\$ 45.57	\$ 227,738
Climate Zone #1	13	13	30	30	0.42	1.20	\$ 18.05	\$ 6.40	\$ 34.42	\$ 208,829
Climate Zone #2	13	13	30	30	0.42	0.65	\$ 18.05	\$ 6.40	\$ 34.42	\$ 188,502
Climate Zone #3	13	13	30	30	0.42	0.50	\$ 18.05	\$ 6.40	\$ 34.42	\$ 222,880
Climate Zone #4	13	13	38	38	0.30	0.35	\$ 18.05	\$ 6.56	\$ 36.24	\$ 232,248
Climate Zone #5	13+5	20 or 13+5	38	38	0.30	0.35	\$ 18.96	\$ 6.56	\$ 36.24	\$ 230,575
Climate Zone #6	13+5	20 or 13+5	49	49	0.30	0.35	\$ 18.96	\$ 6.68	\$ 36.24	\$ 210,072
Climate Zone #7 & 8	**21	**21	49	49	0.30	0.35	\$ 18.85	\$ 6.68	\$ 36.24	\$ 259,166

*Costs based on the Cost Model

**R-19 and R-21: framing at 24" oc, all others at 16" oc

†Roof Construction Assembly costs are calculated per square foot of roof area and not per square foot of insulated ceiling area

Costs in the above Table 2.5 are based upon the Prototype Cost Estimate for the foundation type, 'Heated Basement'. The "Total Estimated Construction Cost of Prototype Home" has been calculated in accordance with the 2009 IECC Energy Efficiency Codes. Cost per square foot illustrations for exterior walls, roof construction and fenestration are based upon a total assembly.

Refer to Section 5, Subtask 4 for the specific U-factor and R-value costs for each Climate Zone criteria under the 2006, 2009 and 2012 IECC.

Refer to Appendix F for Geo-Modifier Data Tables.

2.6 COST DATABASE FOR VARIOUS PUBLISHED CODES/STANDARDS DESCRIPTIONS

- 2.6.1 Cost data has been collected for various component types as listed in the Task Order. These component types include insulation, fenestration, doors, air infiltration (sealing), lighting and mechanical.
- 2.6.2 Cost data is listed in Appendix C to this Report. The cost data for solar and ground source heat pumps have been combined with the data for Subtask 2 and is included within Appendix E to this Report.

3 Subtask 2: Cost Data Collection For 50 % Better Code Development Description

- 3.2 The cost data within this Section is based upon initial efforts to compile information that will be used to advance residential codes to 50% better, including support for IECC 2015 for residential buildings.
- 3.3 Per the requirements of the Work Order, categories investigated for compilation of cost data include:
 - 3.3.1 Super High R-Values
 - 3.3.2 Solar Control Options
 - 3.3.3 Combined space/water heating systems
 - 3.3.4 Ductless Systems
 - 3.3.5 Heat Pump Water Heaters
 - 3.3.6 Desuperheaters
 - 3.3.7 Instantaneous Water Heaters
 - 3.3.8 Solar Assisted Water Heaters
 - 3.3.9 Geothermal Source Heat Pumps
 - 3.3.10 Commissioning
 - 3.3.11 Refrigerant Charge Testing
 - 3.3.12 Air system balancing
- 3.4 The preliminary cost data includes for purchase costs and labor installation hours, based upon a nationwide average. This data collection will be advanced to include for total labor and installation costs, including subcontractor overhead and profit and general conditions. Allowances for escalation and design contingency have also been included. Costs do not include for pipe and electrical connections, except where noted.
- 3.5 It is envisaged that in the future, these costs shall be used to calculate complete installation “assemblies” for potential incorporation within various ‘cost model scenarios’ and could include lifecycle cost analysis.
- 3.6 The cost data gathered is detailed in Appendix E.

4 Subtask 3: Raw Data Submitted in Comma-Delimited Format

4.1 This Subtask consists of the Prototype Home Estimate 'Heated Basement' (Subtask 1) and Cost Data Collection (Subtask 2) files submitted in comma-delimited (.csv) format. These files have been provided as separate attachments to this report.

5. Subtask 4: Cost Data for the 2006 and 2012 IECC

5.1 Subtask 4 expands upon the data provided in Subtask 2 and compares estimated costs for the 2006 and 2012 IECC. For summary purposes, we have included here the 2009 IECC data obtained in the deliverable for Subtask 2. All costs are represented as present day.

5.2 In the charts below, the insulation and fenestration requirements have been compared by Climate Zone and IECC requirement. Costs are listed by U-Factor and by SHGC, are mutually exclusive, and should not be considered as either an addition to or subtraction from one another.

Table 5.2.1 Fenestration Costs by U-Factor per Square Foot by Climate Zone

Fenestration U -Factor	2006 IECC		2009 IECC		2012 IECC	
	U-Factor	\$/sf	U-Factor	\$/sf	U-Factor	\$/sf
Climate Zone #1	1.20	\$ 29.84	1.20	\$ 29.84	NR	\$ -
Climate Zone #2	0.75	\$ 32.53	0.65	\$ 33.12	0.40	\$ 34.62
Climate Zone #3	0.65	\$ 33.12	0.50	\$ 34.02	0.35	\$ 34.91
Climate Zone #4 except Marine	0.40	\$ 34.62	0.35	\$ 34.91	0.35	\$ 34.91
Climate Zone #5 and Marine 4	0.35	\$ 34.91	0.35	\$ 34.91	0.32	\$ 35.09
Climate Zone #6	0.35	\$ 34.91	0.35	\$ 34.91	0.32	\$ 35.09
Climate Zone #7 and 8	0.35	\$ 34.91	0.35	\$ 34.91	0.32	\$ 35.09

- Fenestration costs per square foot are based upon an average cost of Jeld-Wen premium vinyl casement window sizes ranging from 24"x42" to 72"x60"
- Cost estimates include for purchase and installation
- The costs for the IECC U-factor of 0.32 are based upon a component product with a U-factor of 0.30

Table 5.2.2 Fenestration Costs by SHGC per Square Foot by Climate Zone

Glazed Fenestration SHGC	2006 IECC		2009 IECC		2012 IECC	
	SHGC	\$/sf	SHGC	\$/sf	SHGC	\$/sf
Climate Zone #1	0.40	\$ 27.62	0.30	\$ 30.39	0.25	\$ 31.77
Climate Zone #2	0.40	\$ 27.62	0.30	\$ 30.39	0.25	\$ 31.77
Climate Zone #3	0.40	\$ 27.62	0.30	\$ 30.39	0.25	\$ 31.77
Climate Zone #4 except Marine	NR	\$ -	NR	\$ -	0.40	\$ 27.62
Climate Zone #5 and Marine 4	NR	\$ -	NR	\$ -	NR	\$ -
Climate Zone #6	NR	\$ -	NR	\$ -	NR	\$ -
Climate Zone #7 and 8	NR	\$ -	NR	\$ -	NR	\$ -

- Estimated costs are based upon interpolation of a quote containing multiple efficiency values and scenarios of various vinyl casement windows

Table 5.2.3 Blown Ceiling Insulation Costs by R-Value per Square Foot by Climate Zone

Ceiling R-Value	2006 IECC		2009 IECC		2012 IECC	
	R-Value	\$/sf	R-Value	\$/sf	R-Value	\$/sf
Climate Zone #1	30	\$ 1.05	30	\$ 1.05	30	\$ 1.05
Climate Zone #2	30	\$ 1.05	30	\$ 1.05	38	\$ 1.33
Climate Zone #3	30	\$ 1.05	30	\$ 1.05	38	\$ 1.33
Climate Zone #4 except Marine	38	\$ 1.33	38	\$ 1.33	38	\$ 1.33
Climate Zone #5 and Marine 4	38	\$ 1.33	38	\$ 1.33	49	\$ 1.61
Climate Zone #6	49	\$ 1.61	49	\$ 1.61	49	\$ 1.61
Climate Zone #7 and 8	49	\$ 1.61	49	\$ 1.61	49	\$ 1.61

- Estimated costs for ceiling R-values are based upon blown cellulose
- Other cost impacts include framing spacing and ceiling drywall thickness. R-38 may require either 5/8" thick drywall or framing at 16" oc due to weight i.e. drywall sag risk w/ 1/2" thick board on 24" oc framing

Table 5.2.4 Exterior Insulation in Wood Frame Wall by R-Value per Square Foot by Climate Zone

Wood Frame Wall R-Value	2006 IECC			2009 IECC			2012 IECC		
	R-Value	Insulation \$/sf	Assembly \$/sf	R-Value	Insulation \$/sf	Assembly \$/sf	R-Value	Insulation \$/sf	Assembly \$/sf
Climate Zone #1	13	\$0.51	\$18.05	13	\$0.51	\$18.05	13	\$0.51	\$18.05
Climate Zone #2	13	\$0.51	\$18.05	13	\$0.51	\$18.05	13	\$0.51	\$18.05
Climate Zone #3	13	\$0.51	\$18.05	13	\$0.51	\$18.05	21 or 13+5	\$1.18 or \$1.30	\$18.85 or \$18.84
Climate Zone #4 except Marine	13	\$0.51	\$18.05	13	\$0.51	\$18.05	21 or 13+5	\$1.18 or \$1.30	\$18.85 or \$18.84
Climate Zone #5 and Marine 4	19 or 13+5	\$0.63 or \$1.20	\$18.30 or \$18.84	21 or 13+5	\$1.18 or \$1.30	\$18.85 or \$18.84	21 or 13+5	\$1.18 or \$1.30	\$18.85 or \$18.84
Climate Zone #6	19 or 13+5	\$0.63 or \$1.20	\$18.30 or \$18.84	21 or 13+5	\$1.97 or \$1.93	\$19.64 or \$19.47	21+5 or 13+10	\$1.97 or \$1.93	\$19.64 or \$19.47
Climate Zone #7 and 8	21	\$1.18	\$18.85	21	\$1.18	\$18.85	21+5 or 13+10	\$1.97 or \$1.93	\$19.64 or \$19.47

- R-5 and R-10 exterior insulation type for wood is extruded polystyrene sheathing (XPS)
- The assembly cost estimate for R-13 Interior cavity insulation is based upon 2"x4" framing at 16" oc.
- The assembly cost estimate for R-19 and R-21 cavity insulation is based upon 2"x6" framing at 24" oc.
- The cost estimate detail for the above assemblies is included in Appendix D.
- Additional costs may be applicable for installing 1"x4" furring strips (estimated at \$0.87/lf) between siding and foam sheathing. Work to foam sheathing may be labor intensive at areas of trim and opening details. Faithful+Gould estimates that complexity at these areas may add up to 50% labor costs.
- For R-20 insulation assume R-21 as it is readily available
- For additional flashing add \$4.22/sf of coverage area

Table 5.2.5 Exterior Insulation in Steel Frame Wall by R-Value per Square Foot by Climate Zone

Steel Frame Wall R-Value	2006 IECC		2009 IECC		2012 IECC	
	R-Value	\$/sf	R-Value	\$/sf	R-Value	\$/sf
Climate Zone #1					13+4.2 or	\$1.30 or
	13+5 or	\$1.30 or	13+5 or	\$1.30 or	19+2.1 or	\$1.38 or
	15+4 or	\$1.54 or	15+4 or	\$1.54 or	21+2.8 or	\$1.93 or
	21+3	\$1.93	21+3 or	\$1.93 or	0+9.3 or	\$1.42 or
			0+10	\$1.42	15+3.8 or	\$1.49 or
					21+3.1	\$2.02
Climate Zone #2					13+4.2 or	\$1.30 or
	13+5 or	\$1.30 or	13+5 or	\$1.30 or	19+2.1 or	\$1.38 or
	15+4 or	\$1.54 or	15+4 or	\$1.54 or	21+2.8 or	\$1.93 or
	21+3	\$1.93	21+3 or	\$1.93 or	0+9.3 or	\$1.42 or
			0+10	\$1.42	15+3.8 or	\$1.49 or
					21+3.1	\$2.02
Climate Zone #3					0+14 or	\$2.21 or
	13+5 or	\$1.30 or	13+5 or	\$1.30 or	13+8.9 or	\$1.93 or
	15+4 or	\$1.54 or	15+4 or	\$1.54 or	15+8.5 or	\$2.33 or
	21+3	\$1.93	21+3 or	\$1.93 or	19+7.8 or	\$2.26 or
			0+10	\$1.42	19+6.2 or	\$2.21 or
					21+7.5	\$2.72
Climate Zone #4 except Marine					0+14 or	\$2.21 or
	13+5 or	\$1.30 or	13+5 or	\$1.30 or	13+8.9 or	\$1.93 or
	15+4 or	\$1.54 or	15+4 or	\$1.54 or	15+8.5 or	\$2.33 or
	21+3	\$1.93	21+3 or	\$1.93 or	19+7.8 or	\$2.26 or
			0+10	\$1.42	19+6.2 or	\$2.21 or
					21+7.5	\$2.72
Climate Zone #5 and Marine 4					0+14 or	\$2.21 or
	13+9 or	\$1.93 or	13+10 or	\$1.93 or	13+8.9 or	\$1.93 or
	19+8 or	\$2.05 or	19+9 or	\$2.05 or	15+8.5 or	\$2.33 or
	25+7	\$2.64	25+8	\$2.64	19+7.8 or	\$2.26 or
					19+6.2 or	\$2.21 or
					21+7.5	\$2.72
Climate Zone #6					13+12.7 or	\$2.68 or
	13+9 or	\$1.93 or	13+10 or	\$1.93 or	15+12.3 or	\$2.87 or
	19+8 or	\$2.05 or	19+9 or	\$2.05 or	19+11.6 or	\$2.80 or
	25+7	2.64	25+8	2.64	21+11.3 or	\$3.56 or
					25+10.9	\$3.39
					13+12.7 or	\$2.68 or
Climate Zone #7 and 8					13+12.7 or	\$2.68 or
	13+10 or	\$1.93 or	13+10 or	\$1.93 or	15+12.3 or	\$2.87 or
	19+9 or	\$2.05 or	19+9 or	\$2.05 or	19+11.6 or	\$2.80 or
	25+8	\$2.64	25+8	\$2.64	21+11.3 or	\$3.56 or
					25+10.9	\$3.39
					13+12.7 or	\$2.68 or

- Exterior insulation type for is based upon Owens Corning Foamular extruded polystyrene rigid sheathing (XPS) with protective coating
- The above estimated costs are for installed insulation only
- For additional flashing add \$4.22/sf of coverage area

Table 5.2.6 Exterior Insulation in Mass Wall by R-Value per Square Foot by Climate Zone

Mass Wall R-Value	2006 IECC		2009 IECC		2012 IECC	
	R-Value	\$/sf	R-Value	\$/sf	R-Value	\$/sf
Climate Zone #1	3	\$ 0.63	3/4	\$0.63 or \$0.49	3/4	\$0.63 or \$0.49
Climate Zone #2	4	\$ 0.89	4/6	\$0.63 or \$0.49	4/6	\$0.63 or \$0.49
Climate Zone #3	5	\$ 0.91	5/8	\$0.91 or \$0.52	8/13	\$1.52 or \$0.51
Climate Zone #4 except Marine	5	\$ 0.91	5/10	\$0.91 or \$0.52	8/13	\$1.52 or \$0.51
Climate Zone #5 and Marine 4	13	\$ 2.02	13/17	\$2.02 or \$0.63	13/17	\$2.02 or \$0.63
Climate Zone #6	15	\$ 2.02	15/19	\$2.02 or \$0.63	15/20	\$2.02 or \$1.18
Climate Zone #7 and 8	19	\$ 2.54	19/21	\$2.54 or \$1.18	19/21	\$2.54 or \$1.18

- Exterior insulation type is rigid board for walls, extruded polystyrene (XPS), 25 PSI compressive strength
- Interior cavity insulation is fiberglass, kraft faced. R-21 is foil faced
- The above estimated costs are for installed insulation only
- For trowel-applied acrylic foundation coating, add \$1.40/sf of coverage area
- For additional flashing add \$4.22/sf of coverage area

Table 5.2.7 Floor Insulation by R-Value per Square Foot by Climate Zone

Floor R-Value	2006 IECC		2009 IECC		2012 IECC	
	R-Value	\$/sf	R-Value	\$/sf	R-Value	\$/sf
Climate Zone #1	13	\$ 0.51	13	\$ 0.51	13	\$ 0.51
Climate Zone #2	13	\$ 0.51	13	\$ 0.51	13	\$ 0.51
Climate Zone #3	19	\$ 0.63	19	\$ 0.63	19	\$ 0.63
Climate Zone #4 except Marine	19	\$ 0.63	19	\$ 0.63	19	\$ 0.63
Climate Zone #5 and Marine 4	30	\$ 1.05	30	\$ 1.05	30	\$ 1.05
Climate Zone #6	30	\$ 1.05	30	\$ 1.05	30	\$ 1.05
Climate Zone #7 and 8	30	\$ 1.05	38	\$ 1.29	38	\$ 1.29

- Floor insulation is fiberglass, kraft faced
- The above estimated costs are for installed insulation only

Table 5.2.8 Foundation Wall Insulation by R-Value per Square Foot by Climate Zone

Basement Wall R-Value	2006 IECC		2009 IECC		2012 IECC	
	R-Value	\$/sf	R-Value	\$/sf	R-Value	\$/sf
Climate Zone #1	-	\$ -	-	\$ -	-	\$ -
Climate Zone #2	-	\$ -	-	\$ -	-	\$ -
Climate Zone #3	-	\$ -	5/13	\$0.91 or \$0.51	5/13	\$0.91 or \$0.51
Climate Zone #4 except Marine	10/13	\$1.52 or \$0.51	10/13	\$1.52 or \$0.51	10/13	\$1.52 or \$0.51
Climate Zone #5 and Marine 4	10/13	\$1.52 or \$0.51	10/13	\$1.52 or \$0.51	15/19	\$2.02 or \$0.77
Climate Zone #6	10/13	\$1.52 or \$0.51	15/19	\$2.02 or \$0.77	15/19	\$2.02 or \$0.77
Climate Zone #7 and 8	10/13	\$1.52 or \$0.51	15/19	\$2.02 or \$0.77	15/19	\$2.02 or \$0.77

- Exterior insulation type is rigid board for walls, Extruded polystyrene (XPS), 25 PSI compressive strength
- Interior cavity insulation is fiberglass, kraft faced
- The illustration below shows a typical below grade application for an example exterior insulating product such as R-Tech® X
- Incremental cost for R-19 includes increase from 2x4 to 2x6 framing
- The above estimated costs are for installed insulation only
- For trowel-applied acrylic foundation coating, add \$1.40/sf of coverage area
- For additional flashing add \$4.22/sf of coverage area

Typical Below Grade Application

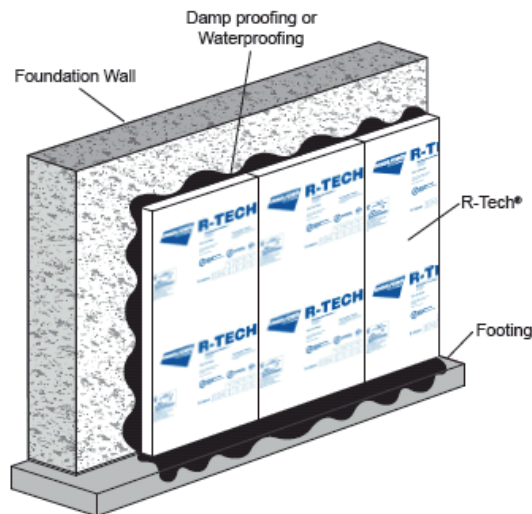
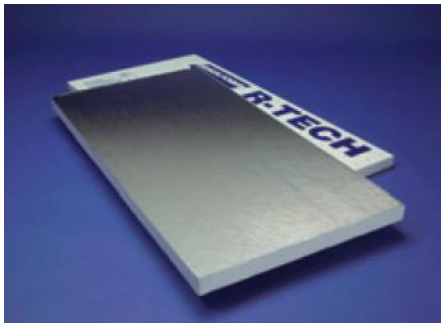


Table 5.2.9 Slab Edge Insulation by R-Value per Linear Foot by Climate Zone

Slab R-Value & Depth	2006 IECC		2009 IECC		2012 IECC	
	R-Value	\$/lf	R-Value	\$/lf	R-Value	\$/lf
Climate Zone #1	-	\$ -	-	\$ -	-	\$ -
Climate Zone #2	-	\$ -	-	\$ -	-	\$ -
Climate Zone #3	-	\$ -	-	\$ -	-	\$ -
Climate Zone #4 except Marine	10, 2ft	\$ 3.24	10, 2ft	\$ 3.24	10, 2ft	\$ 3.24
Climate Zone #5 and Marine 4	10, 2ft	\$ 3.24	10, 2ft	\$ 3.24	10, 2ft	\$ 3.24
Climate Zone #6	10, 4ft	\$ 6.48	10, 4ft	\$ 6.48	10, 4ft	\$ 6.48
Climate Zone #7 and 8	10, 4ft	\$ 6.48	10, 4ft	\$ 6.48	10, 4ft	\$ 6.48

- Costs above indicate \$/lf based on insulation in 2'-0" or 4'-0" wide increments
- The costs above are for slab edge insulation type consisting of 2" thick R-10 extruded polystyrene 60 PSI compressive strength. R-5 to the edge of heated slabs is \$0.91/sf
- The above estimated costs are for installed insulation only
- Products such as R-Tech® X are available for under-slab / slab edge applications and consist of "superior closed-cell, lightweight and resilient expanded polystyrene (EPS) with advanced polymeric laminate facers". A typical application is illustrated by the manufacturer below



Typical Under Slab Application

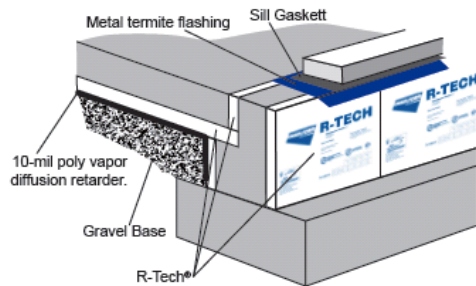


Table 5.2.10 Exterior Insulation in Crawlspace Wall by R-Value per Square Foot by Climate Zone

Crawlspace Wall R-Value	2006 IECC		2009 IECC		2012 IECC	
	R-Value	\$/sf	R-Value	\$/sf	R-Value	\$/sf
Climate Zone #1	-	\$ -	-	\$ -	-	\$ -
Climate Zone #2	-	\$ -	-	\$ -	-	\$ -
Climate Zone #3	5/13	\$0.91 or \$0.51	5/13	\$0.91 or \$0.51	5/13	\$0.91 or \$0.51
Climate Zone #4 except Marine	10/13	\$1.52 or \$0.51	10/13	\$1.52 or \$0.51	10/13	\$1.52 or \$0.51
Climate Zone #5 and Marine 4	10/13	\$1.52 or \$0.51	10/13	\$2.02 or \$0.77	15/19	\$2.02 or \$0.77
Climate Zone #6	10/13	\$1.52 or \$0.51	15/19	\$2.02 or \$0.77	15/19	\$2.02 or \$0.77
Climate Zone #7 and 8	10/13	\$1.52 or \$0.51	15/19	\$2.02 or \$0.77	15/19	\$2.02 or \$0.77

- Exterior Insulation type is expanded polystyrene sheathing (EPS)
- Interior cavity insulation is fiberglass, kraft faced
- The above estimated costs are for installed insulation only
- For trowel-applied acrylic foundation coating, add \$1.40/sf of coverage area
- For additional flashing add \$4.22/sf of coverage area

Table 5.2.11 Incremental Cost per Square Foot for Framing Depth Changes

12" O/C	\$/sf	2x4	2x6	2x8	2x10	2x12
2x4	\$2.06	-	\$0.47	\$2.73	\$4.62	\$4.58
2x6	\$2.53	(\$0.47)	-	\$2.26	\$4.15	\$4.10
2x8	\$4.79	(\$2.73)	(\$2.26)	-	\$1.89	\$1.84
2x10	\$6.68	(\$4.62)	(\$4.15)	(\$1.89)	-	(\$0.04)
2x12	\$6.64	(\$4.58)	(\$4.10)	(\$1.84)	\$0.04	-
16" O/C	\$/sf	2x4	2x6	2x8	2x10	2x12
2x4	\$1.78	-	\$0.41	\$2.36	\$4.00	\$3.96
2x6	\$2.19	(\$0.41)	-	\$1.95	\$3.59	\$3.55
2x8	\$4.14	(\$2.36)	(\$1.95)	-	\$1.63	\$1.59
2x10	\$5.78	(\$4.00)	(\$3.59)	(\$1.63)	-	(\$0.04)
2x12	\$5.74	(\$3.96)	(\$3.55)	(\$1.59)	\$0.04	-
24" O/C	\$/sf	2x4	2x6	2x8	2x10	2x12
2x4	\$1.36	-	\$0.31	\$1.81	\$3.06	\$3.03
2x6	\$1.67	(\$0.31)	-	\$1.49	\$2.74	\$2.71
2x8	\$3.17	(\$1.81)	(\$1.49)	-	\$1.25	\$1.22
2x10	\$4.42	(\$3.06)	(\$2.74)	(\$1.25)	-	(\$0.03)
2x12	\$4.39	(\$3.03)	(\$2.71)	(\$1.22)	\$0.03	-

- The above is based on a single wall section 10'-0" Long x 8'-0" High
- Assumes double top plate, single bottom plate
- 2x12 framing costs are estimated at slightly lower than that of 2x10; this difference is due to product availability, as one size is more common than the other

Table 5.2.12 Incremental Cost per Square Foot for Cathedral Ceiling Framing Depth Changes

12" O/C	\$/sf	2x6	2x8	2x10	2x12	2x14	2x16
2x6	\$2.53	-	\$2.58	\$4.89	\$4.84	\$8.91	\$11.89
2x8	\$5.12	(\$2.58)	-	\$2.30	\$2.25	\$6.33	\$9.31
2x10	\$7.42	(\$4.89)	(\$2.30)	-	(\$0.05)	\$4.02	\$7.00
2x12	\$7.37	(\$4.84)	(\$2.25)	\$0.05	-	\$4.07	\$7.05
2x14	\$11.44	(\$8.91)	(\$6.33)	(\$4.02)	(\$4.07)	-	\$2.98
2x16	\$14.42	(\$11.89)	(\$9.31)	(\$7.00)	(\$7.05)	(\$2.98)	-
16" O/C	\$/sf	2x6	2x8	2x10	2x12	2x14	2x16
2x6	\$2.14	-	\$2.18	\$4.13	\$4.09	\$7.54	\$10.06
2x8	\$4.33	(\$2.18)	-	\$1.95	\$1.91	\$5.35	\$7.88
2x10	\$6.28	(\$4.13)	(\$1.95)	-	(\$0.04)	\$3.40	\$5.93
2x12	\$6.24	(\$4.09)	(\$1.91)	\$0.04	-	\$3.45	\$5.97
2x14	\$9.68	(\$7.54)	(\$5.35)	(\$3.40)	(\$3.45)	-	\$2.52
2x16	\$12.21	(\$10.06)	(\$7.88)	(\$5.93)	(\$5.97)	(\$2.52)	-
24" O/C	\$/sf	2x6	2x8	2x10	2x12	2x14	2x16
2x6	\$1.56	-	\$1.59	\$3.01	\$2.98	\$5.48	\$7.32
2x8	\$3.15	(\$1.59)	-	\$1.42	\$1.39	\$3.89	\$5.73
2x10	\$4.57	(\$3.01)	(\$1.42)	-	(\$0.03)	\$2.48	\$4.31
2x12	\$4.54	(\$2.98)	(\$1.39)	\$0.03	-	\$2.51	\$4.34
2x14	\$7.04	(\$5.48)	(\$3.89)	(\$2.48)	(\$2.51)	-	\$1.83
2x16	\$8.88	(\$7.32)	(\$5.73)	(\$4.31)	(\$4.34)	(\$1.83)	-

- The above is based on a single ceiling section 10'-0" Long x 10'-0" Wide sloped area and is for framing only
- Assumes steep slope (greater than 7/12),
- Includes rafters, ridge board and sub-fascia board as well as access (lift/scaffold)
- 2x12 framing costs are estimated at slightly lower than that of 2x10; this difference is due to product availability, as one size is more common than the other

Table 5.2.13 Mass Wall

Mass Wall R-Value	2006 IECC				2009 IECC				2012 IECC			
	R-Value	CMU \$/sf	Concrete \$/sf	ICF (R-22) \$/sf	R-Value	CMU \$/sf	Concrete \$/sf	ICF (R-22) \$/sf	R-Value	CMU \$/sf	Concrete \$/sf	ICF (R-22) \$/sf
Climate Zone #1	3	\$ 12.44	\$ 15.93	\$ 18.98	3/4	\$12.44 or \$13.83	\$15.93 or \$17.32	\$ 18.98	3/4	\$12.44 or \$13.83	\$15.93 or \$17.32	\$ 18.98
Climate Zone #2	4	\$ 12.44	\$ 15.93	\$ 18.98	4/6	\$12.44 or \$13.83	\$15.93 or \$17.32	\$ 18.98	4/6	\$12.44 or \$13.83	\$15.93 or \$17.32	\$ 18.98
Climate Zone #3	5	\$ 12.44	\$ 15.93	\$ 18.98	5/8	\$12.44 or \$13.83	\$15.93 or \$17.32	\$ 18.98	8/13	\$13.05 or \$13.82	\$16.54 or \$17.31	\$ 18.98
Climate Zone #4 except Marine	5	\$ 12.44	\$ 15.93	\$ 18.98	5/10	\$12.44 or \$13.83	\$15.93 or \$17.32	\$ 18.98	8/13	\$13.05 or \$13.82	\$16.54 or \$17.31	\$ 18.98
Climate Zone #5 and Marine 4	13	\$ 13.55	\$ 17.04	\$ 18.98	13/17	\$13.55 or \$14.35	\$17.04 or \$17.83	\$ 18.98	13/17	\$13.55 or \$14.35	\$17.04 or \$17.83	\$ 18.98
Climate Zone #6	15	\$ 13.55	\$ 17.04	\$ 18.98	15/19	\$13.55 or \$14.35	\$17.04 or \$17.83	\$ 18.98	15/20	\$13.55 or \$14.90	\$17.04 or \$18.83	\$ 18.98
Climate Zone #7 and 8	19	\$ 14.07	\$ 17.56	\$ 18.98	19/21	\$14.07 or \$14.90	\$17.56 or \$18.38	\$ 18.98	19/21	\$14.07 or \$14.90	\$17.56 or \$18.38	\$ 18.98

- Exterior insulation type is rigid board for walls, extruded polystyrene (XPS), 25 PSI compressive strength
- Interior cavity insulation is fiberglass, kraft faced. R-21 is foil faced.
- The above estimated costs are for wall structure, framing for batt insulation applications only, and installed insulation only; does not include any finishing costs including gypsum wall board or exterior cladding
- For trowel-applied acrylic foundation coating, add \$1.40/sf of coverage area
- For additional flashing add \$4.22/sf of coverage area

6. Subtask 5: Report on Data Additional to Subtask 2

6.2 All cost data applicable to Subtask 2 and Subtask 5 has been consolidated and detailed in Appendix E.

7 Subtask 6: Raw Data Submitted in Comma-Delimited Format

7.2 This Subtask has been consolidated with the above Subtask 3.

8 APPENDICES

8.1 Appendices are listed as follows:

APPENDIX A – PROTOTYPE ESTIMATES – SINGLE FAMILY HOME

APPENDIX B – PROTOTYPE DESIGN DOCUMENTS – SINGLE FAMILY HOME

APPENDIX C – COST DATABASE FOR VARIOUS PUBLISHED CODES/STANDARD DESCRIPTIONS

APPENDIX D – WALL ASSEMBLY COST ESTIMATES

APPENDIX E – COST DATA FOR 50% BETTER CODE DEVELOPMENT

APPENDIX F – GEO-MODIFIER DATA TABLES

APPENDIX A
PROTOTYPE ESTIMATES – SINGLE FAMILY HOME

Detailed Cost Estimate

PROTOTYPE HOME
Residential Single Family Home
Pacific Northwest National Laboratories



September 16, 2011

Provided By:

900 2nd Ave South, Suite 500
Minneapolis, MN 55402
Telephone 612.338.3120
FGOULD.COM

Verification:	Initial	Date
Arithmetical	EA	9/26/2011
Technical	CC	9/26/2011
Format & Presentation	JP	9/26/2011
Authorized for Issue	MP	9/29/2011

16-Sep-11



PROTOTYPE HOME
Residential Single Family Home

Detailed Cost Estimate

INTRODUCTION

Project Description

In brief, the project comprises the construction of a new 2,418 gsf single family home. Cost includes attached 3-car garage as unconditioned space.

This document is based on the measurement and pricing of quantities wherever information is provided and/or reasonable assumptions for other works not covered in the drawings and programs as stated in this document. The unit rates reflected herein have been obtained from industry recognized sources and have been normalized to indicate a national average cost for the scope of work. All unit rates relevant to subcontractor works include the subcontractors' overhead and profit.

Basis of Pricing

Pricing shown reflects probable construction costs for 1st quarter 2011 and are based on a nationwide average. This estimate is a determination of fair market value for the construction of this project. It is not a prediction of low bid. Pricing assumes competitive bidding for every portion of the construction work for all subcontractors, that is to mean 4 to 5 bids. If fewer bids are received, bid results can be expected to be higher.

Subcontractor's markups have been included in each line item unit price. These markups cover the cost of the field overhead, home office overhead, and profit. These markups can range from 5% to 15% of the cost for that particular item of work. The rates that have been established are for budgetary purposes only and are not to be used to establish the cost of additions or deletions to the scope of work that may rise during the actual construction process.

General Contractor's General Conditions, Overhead and Profit are calculated at 11%

Documentation

Estimate is based upon PLAN # 970605 dated 6/22/1997

Estimate assumes that the basement and "Future" spaces are unfinished.

Design/ Pricing Contingency

A 2.5% Pricing contingency has been included in the estimate, reduced from 5% at the Design Development level. This contingency should reduce to zero at bid stage, but the monies identified are likely to be absorbed in the detail "above-the-line".

Escalation

Escalation is included at 0.52%, based on 2.5% per annum, to the construction midpoint based on a four month schedule in summer of 2012.

PROTOTYPE HOME
Residential Single Family Home

Detailed Cost Estimate

INTRODUCTION

Items excluded from the Cost Estimate

- Design, engineering and consultant fees
- Testing and inspection
- Fire and all risk insurance
- Construction contingency
- Owner's contingency
- Loose furniture, fittings and equipment (FF&E)
- Moving costs
- Artwork
- Interior Plants
- Window Treatments

Items that may affect the cost estimate

- Modifications to the scope of work included in this estimate.
- Special phasing requirements.
- Restrictive technical specifications or excessive contract conditions.
- Any other non-competitive bid situations.

Statements of Probable Cost

Faithful+Gould has no control over the cost of labor and materials, general contractor's or any subcontractor's method of determining prices, or competitive bidding and market conditions. This opinion of probable cost of construction is made on the basis of the experience, qualifications, and best judgment of the professional consultant familiar with the construction industry. Faithful+Gould cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from this or subsequent cost estimates.

Faithful+Gould's staff of professional cost consultants has prepared this estimate in accordance with generally accepted principles and practices. This staff is available to discuss its contents with interested personnel.

Recommendation for Cost Control

Faithful+Gould recommends that the Owner carefully review this document, including line item descriptions, unit prices, clarifications, exclusions, inclusions and assumptions, contingencies, escalation and markups. If the project is over budget, or if there are unresolved budgeting issues, alternate systems schemes should be evaluated before proceeding further into the design phase.

Requests for modifications of any apparent errors or omissions to this document must be made to within ten (10) days of receipt of this estimate. Otherwise, it will be understood that the contents have been concurred with and accepted.

PROTOTYPE HOME
Residential Single Family Home

Detailed Cost Estimate GFA 1,458 1,458 1,458 2,418 2,418

MAIN SUMMARY						
SYSTEM DESCRIPTION	Slab-on-Grade	Unvented Crawlspace	Vented Crawlspace	Unheated Basement	Heated Basement	
A10 FOUNDATIONS	\$17,346	\$11,264	\$11,079	\$14,394	\$14,394	
A20 BASEMENT CONSTRUCTION	\$0	\$4,322	\$4,092	\$7,914	\$10,110	
B10 SUPERSTRUCTURE	\$15,739	\$21,906	\$22,991	\$22,991	\$21,906	
B20 EXTERIOR CLOSURE	\$49,155	\$49,155	\$49,407	\$56,741	\$56,741	
B30 ROOFING	\$6,486	\$6,486	\$6,486	\$6,486	\$6,486	
C10 INTERIOR CONSTRUCTION	\$23,922	\$23,922	\$23,922	\$25,138	\$25,138	
C20 STAIRCASES	\$2,638	\$2,638	\$2,638	\$3,581	\$3,581	
C30 INTERIOR FINISHES	\$10,362	\$10,362	\$10,362	\$10,444	\$10,690	
D10 CONVEYING SYSTEMS	\$0	\$0	\$0	\$0	\$0	
D20 PLUMBING	\$11,777	\$11,777	\$11,777	\$12,058	\$12,058	
D30 HVAC	\$13,688	\$14,214	\$13,688	\$13,969	\$14,522	
D40 FIRE PROTECTION	\$0	\$0	\$0	\$0	\$0	
D50 ELECTRICAL	\$12,126	\$12,189	\$12,126	\$12,289	\$12,451	
E10 EQUIPMENT	\$4,354	\$4,354	\$4,354	\$4,354	\$4,354	
E20 FURNISHINGS	\$0	\$0	\$0	\$0	\$0	
F10 SPECIAL CONSTRUCTION	\$0	\$0	\$0	\$0	\$0	
F20 SELECTIVE BUILDING DEMOLITION	\$0	\$0	\$0	\$0	\$0	
G SITE PREP/DEVELOPMENT	\$7,196	\$7,196	\$7,196	\$7,196	\$7,196	
TOTAL DIRECT COST (Trade Costs)	\$174,790	\$179,787	\$180,119	\$197,555	\$199,628	
MARK UP General Contractor GC's/Mark-ups	\$19,227	\$19,777	\$19,813	\$21,731.08	\$21,959	
SUBTOTAL CONSTRUCTION	\$194,017	\$199,564	\$199,932	\$219,286	\$221,587	
CONTINGENCIES/ESCALATION Design & Pricing Contingency	\$4,370	\$4,495	\$4,503	\$4,939	\$4,991	
Escalation	\$1,017	\$1,046	\$1,048	\$1,149	\$1,161	
TOTAL CONSTRUCTION COST	\$199,403	\$205,104	\$205,483	\$225,374	\$227,738	
ALTERNATES						
Alt-1 insert alternate						
Alt-2 insert alternate						
Alt-3 insert alternate						
Alt-4 insert alternate						
Alt-5 insert alternate						
TOTAL ALTERNATES						
SUBTOTAL INCLUDING ALTERNATES	\$199,403	\$205,104	\$205,483	\$225,374	\$227,738	

PROTOTYPE HOME

Residential Single Family Home

Detailed Cost Estimate

Slab-On-Grade

GFA

1,458

DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	EST'D COST	SUB TOTAL	TOTAL COST
A10 FOUNDATIONS										
A1010 STANDARD FOUNDATIONS										
A101001 CIP Strip Footings, Reinforced (3,000 psi)	9	cy	3.910	161.66	177.28	0.00	338.94	\$ 3,050		
A101001 6" CMU Foundation Walls	135	sf	0.089	2.88	4.02	0.00	6.90	\$ 932		
A101001 8" CMU Foundation Walls	663	sf	0.093	3.23	4.30	0.00	7.53	\$ 4,992		
A101001 12" CMU Foundation Walls	83	sf	0.122	4.38	7.15	0.00	11.53	\$ 957		
A101099 Drain Tile	128	lf	0.063	7.55	1.45	0.00	9.00	\$ 1,152		
A101099 Waterproofing; Spray applied 2-coats	768	sf	0.016	0.42	0.73	0.00	1.15	\$ 883		
SUBTOTAL									\$ 11,967	
A1020 SPECIAL FOUNDATIONS										
None									\$ -	
SUBTOTAL									\$ -	
A1030 LOWEST FLOOR CONSTRUCTION										
A103001 4" Slab on Grade w/ 6x6 10/10 W1.4/W1.4, (3,000 psi)	19	cy	2.610	158.76	124.39		283.15	\$ 5,380		
SUBTOTAL									\$ 5,380	
										\$ 17,346
A20 BASEMENT CONSTRUCTION										
A2010 BASEMENT EXCAVATION										
SUBTOTAL									\$ -	
A2020 BASEMENT WALLS										
SUBTOTAL									\$ -	
TOTAL - BASEMENT CONSTRUCTION										\$ -
B10 SUPERSTRUCTURE										
B1010 UPPER FLOOR CONSTRUCTION										
Second Floor Construction										
B101001 18" Floor Trusses @ 24" O.C. (20'-0" Span)	0.26	mlf	21.622	3,175.00	650.00	0.00	3,825.00	\$ 1,010		
B101003 3/4" Tongue & Groove Oxboard Subfloor	486	sf	0.010	0.82	0.31	0.00	1.13	\$ 549		
B101099 R-19 Rim Insulation	98	sf	0.006	0.37	0.18	0.00	0.55	\$ 54		
SUBTOTAL									\$ 1,613	
B1020 ROOF CONSTRUCTION										
B102001 Engineered Roof Trusses 5:12 Pitch (20'-0" Span)	480	sf	0.055	3.39	2.99	0.00	6.38	\$ 3,064		
B102001 Engineered Roof Trusses 5:12 Pitch (30'-0" Span)	630	sf	0.057	3.45	3.08	0.00	6.53	\$ 4,114		
B102001 Scissor Trusses 8:12 Pitch (23'-0" Span)	480	sf	0.058	3.51	3.17	0.00	6.68	\$ 3,206		
B102001 Girder Trusses (7'-0" Span)	1	ea	0.702	76.50	19.25	0.00	95.75	\$ 96		
B102099 2x6 Sub Facia	310	lf	0.011	0.53	0.34	0.00	0.87	\$ 270		
B102003 1/2" OSB Roof Sheathing	2,440	sf	0.012	0.33	0.36	0.00	0.69	\$ 1,684		
B102099 R-44 Blown-In Roof Insulation	974	sf	0.024	0.56	0.54	0.29	1.39	\$ 1,349		
B102099 4-Mil Poly Vapor Barrier	2,440	sf	0.002	0.030	0.070	0.000	0.10	\$ 244		
B102099 1" Air Baffles	50.0	ea	0.001	1.00	1.00	0.00	2.00	\$ 100		
SUBTOTAL									\$ 14,126	
TOTAL - SUPERSTRUCTURE										\$ 15,739
B20 EXTERIOR ENCLOSURE										
B2010 EXTERIOR WALLS										
B201002 Exterior Film Wall Wrap	2,134	sf	0.002	0.13	0.06	0.00	0.19	\$ 405		
B201001 Vinyl Siding	2,427	sf	0.065	3.57	3.29	0.00	6.86	\$ 16,649		
B201001 Face Brick	25	sf	0.174	3.61	4.85	0.00	8.46	\$ 212		
B201001 1/2" Oriented Strand Board Wall Sheathing	2,134	sf	0.012	0.39	0.37	0.00	0.76	\$ 1,622		
B201001 2x4 Studs 16" oc (Garage), 8 foot height	91	lf	0.192	4.48	9.76	0.00	14.24	\$ 1,296		
B201001 2x6 Studs 16" oc, 8 foot height	518	lf	0.208	6.88	10.64	0.00	17.52	\$ 9,075		
B201001 2x10 Rim Joist	128	lf	0.015	1.11	0.47	0.00	1.58	\$ 202		
B201001 2x10 Header	192	lf	0.015	1.11	0.47	0.00	1.58	\$ 303		
B201002 2x14 Header	36	lf	0.018	1.70	0.54	0.00	2.24	\$ 81		
B201003 R-19 Batt Insulation	1,790	sf	0.006	0.37	0.18	0.00	0.55	\$ 985		
B201002 1/2" Gypsum Wall Board	1,361	sf	0.022	0.54	1.08	0.00	1.62	\$ 2,205		
B201008 Interior Vapor Barrier (optional)	1,361	sf	0.002	0.030	0.070	0.000	0.10	\$ 136		
B201008 Prefinished Metal Facia	310	lf	0.040	1.29	1.21	0.00	2.50	\$ 775		
B201008 Prefinished Vented Metal Soffit Panel	310	lf	0.160	6.05	4.82	0.00	10.87	\$ 3,364		
SUBTOTAL									\$ 37,310	
B2020 WINDOWS/ GLAZING (builders grade)										
B202001 Type A; 4'-0"x4'-0" Vinyl Glider	1	ea	0.889	483.52	24.00	0.00	507.52	\$ 508		
B202001 Type B; 5'-0"x4'-0" Vinyl Glider	3	ea	0.889	604.40	27.60	0.00	632.00	\$ 1,896		
B202001 Type C; 6'-0"x5'-0" Vinyl Glider	3	ea	1.000	906.60	30.00	0.00	936.60	\$ 2,810		
B202001 Type D; 6'-0"x6'-8" Vinyl Patio Glider	1	ea	5.330	1,208.80	48.00	0.00	1,256.80	\$ 1,257		
B202001 Type E; 2'-0"x3'-6" Crank Out Casement	2	ea	0.842	283.00	25.50	0.00	308.50	\$ 617		

PROTOTYPE HOME

Residential Single Family Home

Detailed Cost Estimate

Slab-On-Grade

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1,458

DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	EST'D COST	SUB TOTAL	TOTAL COST
SUBTOTAL									\$ 7,087	
B2030 EXTERIOR DOORS										
B203002	3'-0"x6'-8" Insulated Metal 6-Panel Door w/ two 8" x 6'-0" sidelites	1	ea	6.274	529.33	303.94	0.00	833.27	\$ 833	
B203004	8'-0"x7'-0" Overhead Sectional Garage Door	1	ea	8.237	1,100.96	390.23	0.00	1,491.19	\$ 1,491	
B203004	16'-0"x7'-0" Overhead Sectional Raised Panel Garage Door	1	ea	11.401	1,895.62	537.56	0.00	2,433.18	\$ 2,433	
SUBTOTAL									\$ 4,758	
TOTAL - EXTERIOR CLOSURE										\$ 49,155
B30 ROOFING										
B3010 ROOF COVERINGS										
B301001	220# Asphalt Architectural Shingles	23.0	sq	1.143	105.930	37.719	0.00	143.65	\$ 3,304	
B301003	15# Asphalt Felt	24.4	sq	0.200	4.940	6.600	0.00	11.54	\$ 282	
B301003	Ice & Water Shield	7.2	sq	0.364	102.590	12.012	0.00	114.60	\$ 819	
B301001	Ridge Shingles	75	lf	0.019	1.90	0.49	0.00	2.39	\$ 179	
B301004	Prefinished Roof Square Vent (1 sf per 200 sf area)	13	ea	0.111	12.00	3.35	0.00	15.35	\$ 200	
B301004	Linear Vent	80	lf	0.052	2.73	1.76	0.00	4.49	\$ 359	
B301004	Prefinished Drip Edge	140	lf	0.020	0.38	0.60	0.00	0.98	\$ 137	
B301004	Wall to Roof Flashings	48	lf	0.055	1.07	1.39	0.00	2.46	\$ 118	
B301004	Valley Flashing	20	lf	0.080	12.00	2.02	0.00	14.02	\$ 280	
B301005	Prefinished Aluminum Gutter	136	lf	0.067	2.58	2.27	0.00	4.85	\$ 660	
B301005	Prefinished Aluminum Downspout	60	lf	0.042	1.03	1.44	0.00	2.47	\$ 148	
SUBTOTAL									\$ 6,486	
B3020 ROOF OPENINGS										
None										
SUBTOTAL									\$ -	
TOTAL - ROOFING										\$ 6,486
C10 INTERIOR CONSTRUCTION										
C1010 PARTITIONS										
C101001	2x4 Studs 16" oc, 8 foot height	97	lf	0.192	4.48	9.76	0.000	14.24	\$ 1,378	
C101001	2x6 Studs 16" oc, 8 foot height	47	lf	0.208	6.88	10.64	0.000	17.52	\$ 815	
C101001	5/8" Gypsum Wall board - fire taped	520	sf	0.017	0.32	0.50	0.00	0.82	\$ 426	
C101001	1/2" Gypsum Wall board - finished	1,729	sf	0.022	0.54	1.08	0.00	1.62	\$ 2,801	
SUBTOTAL									\$ 5,420	
C1020 INTERIOR DOORS (incl. frames & hdwe.)										
C102001	Interior Single Doors; Solid Core Wood, 2'-4"	4	ea	7.854	274.28	362.29	0.00	636.57	\$ 2,546	
C102001	Interior Single Doors; Solid Core Wood, 2'-6"	2	ea	7.854	289.52	362.29	0.00	651.81	\$ 1,304	
C102001	Interior Single Doors; Solid Core Wood, 2'-8"	2	ea	7.854	304.76	362.29	0.00	667.05	\$ 1,334	
C102004	Bi-Fold Door, 5'-0"	1	ea	7.568	382.50	350.68	0.00	733.18	\$ 733	
SUBTOTAL									\$ 5,917	
C1030 SPECIALTIES / MILLWORK										
C103009	Particle Board Base Cabinets; Oak Veneer	18	lf	0.320	96.60	16.20	0.00	112.80	\$ 2,030	
C103009	Particle Board Upper Cabinets; Oak Veneer	22	lf	0.213	64.40	10.80	0.00	75.20	\$ 1,654	
C103098	1'-6"x5'-0" High Pantry	1	ea	0.533	161.00	27.00	0.00	188.00	\$ 188	
C103008	P-Lam Countertops w/ Backsplash	85	sf	0.267	32.00	13.45	0.00	45.45	\$ 3,863	
C103006	Malamine Closet Shelf w/ rod	28	sf	0.076	4.24	2.30	0.00	6.54	\$ 183	
C103099	Railing, Ballusters, Newel - Oak	12	lf	0.200	37.00	6.05	0.00	43.05	\$ 517	
C103099	Oak Skirt Boards	28	lf	0.083	2.75	2.51	0.00	5.26	\$ 147	
C103099	Oak Handrail	13	lf	0.133	5.50	3.33	0.00	8.83	\$ 115	
C103099	5/4" Oak Window Surround Jambs	9	sets	1.330	62.50	40.00	0.00	102.50	\$ 923	
C103099	Ranch Casing	624	lf	0.037	1.62	1.12	0.00	2.74	\$ 1,710	
Toilet Accessories										
C103002	Toilet Roll Holder	1	ea	0.267	18.65	13.45	0.00	32.10	\$ 32	
C103002	Towel Holder	1	ea	0.278	35.00	14.05	0.00	49.05	\$ 49	
C103002	48" Vanity 2'-0" Wide x 2'-6" High	1	ea	1.500	360.00	63.13	0.00	423.13	\$ 423	
C103002	P-Lam Countertop w/ backsplash	1	ea	1.500	360.00	63.13	0.00	423.13	\$ 423	
C103098	2'-0" Wide x 6'-0" High Linen Closet Faceframe	1	ea	0.267	32.000	13.450	0.000	45.45	\$ 45	
C103002	Mirrors w/out shelves	12	sf	0.111	17.92	5.63	0.00	23.55	\$ 283	
SUBTOTAL									\$ 12,585	
TOTAL - INTERIOR CONSTRUCTION										\$ 23,922
C20 STAIRCASES										
C2010 STAIR CONSTRUCTION										
C201002	CIP Concrete Stoop (8'-0" Wide; 2-risers)	4	cy	4.888	202.075	221.600	0.000	423.68	\$ 1,695	
C201001	Wood Stairs, for carpet	14	ea	0.410	55.00	12.35	0.00	67.35	\$ 943	
SUBTOTAL									\$ 2,638	
C2020 STAIR FINISHES										
See Finishes										

PROTOTYPE HOME

Residential Single Family Home

Detailed Cost Estimate

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DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	EST'D COST	SUB TOTAL	TOTAL COST
SUBTOTAL									\$ -	
TOTAL - STAIRCASES										\$ 2,638
C30 INTERIOR FINISHES										
C3010 WALL FINISHES										
C301005 PT; painted gyp	2,946	sf	0.010	0.11	0.27	0.00	0.38	\$ 1,119		
SUBTOTAL									\$ 1,119	
C3020 FLOOR FINISHES										
C302005 CPT-1: Carpet & Pad	76	sy	0.162	27.99	4.59	0.00	32.58	\$ 2,476		
C302004 RF-1: Sheet Vinyl	345	sf	0.032	3.75	0.91	0.00	4.66	\$ 1,608		
C302099 Wood Base; 3-1/2" Oak	339	lf	0.033	3.38	1.00	0.00	4.38	\$ 1,485		
C302099 Base Shoe (Oak quarter-round)	339	ea	0.030	0.45	0.91	0.00	1.36	\$ 461		
SUBTOTAL									\$ 6,030	
C3030 CEILING FINISHES										
C303003 ½" Gypsum Board	842	sf	0.330	0.57	1.54	0.00	2.11	\$ 1,777		
C303003 ¾" Vaulted Gypsum Board	480	sf	0.396	0.57	1.54	0.00	2.11	\$ 1,013		
C303099 Spray Applied Texture, add for above	1,322	sf	0.010	0.05	0.27	0.00	0.32	\$ 423		
SUBTOTAL									\$ 3,212	
TOTAL - INTERIOR FINISHES										\$ 10,362
D10 CONVEYING SYSTEMS										
D1010 ELEVATOR										
SUBTOTAL									\$ -	
D1020 ESCALATORS & MOVING WALKWAYS										
SUBTOTAL									\$ -	
D1030 OTHER CONVEYING SYSTEMS										
SUBTOTAL									\$ -	
TOTAL - CONVEYING SYSTEMS										\$ -
D20 PLUMBING										
D2010 PLUMBING FIXTURES										
D201001 Water Closet	1	ea	3.019	265.00	157.00	0.00	422.00	\$ 422		
D201003 Lavatory Sink	1	ea	2.500	325.00	130.00	0.00	455.00	\$ 455		
D201005 5' Tub and Shower Surround - 1 Piece	1	ea	4.000	780.00	127.00	0.00	907.00	\$ 907		
D201004 2 Compartment Sink Unit	1	ea	3.330	400.00	106.00	0.00	506.00	\$ 506		
D201099 Laundry Tub	1	ea	2.462	145.00	78.50	0.00	223.50	\$ 224		
D201004 Kitchen Faucet	1	ea	1.133	77.65	40.30	0.00	117.95	\$ 118		
D201003 Lavatory Faucet	1	ea	1.201	62.50	42.50	0.00	105.00	\$ 105		
D201005 Bath/Shower Faucet	1	ea	1.000	86.50	35.50	0.00	122.00	\$ 122		
D201099 Laundry Faucet	1	ea	0.800	171.00	28.50	0.00	199.50	\$ 200		
D201099 Hose Bib	2	ea	0.333	10.60	11.80	0.00	22.40	\$ 45		
SUBTOTAL									\$ 3,103	
D2020 DOMESTIC WATER DISTRIBUTION										
SOFT COLD WATER-								\$ -		
D202001 ½" copper	150	lf	0.099	3.97	3.50	0.00	7.47	\$ 1,121		
D202001 ¾" copper	32	lf	0.105	5.95	3.73	0.00	9.68	\$ 310		
D202001 1" copper	20	lf	0.118	9.00	4.16	0.00	13.16	\$ 263		
HOT WATER-								\$ -		
D202001 ½" copper	100	lf	0.099	3.970	3.500	0.000	7.47	\$ 747		
D202001 ¾" copper	30	lf	0.105	5.950	3.730	0.000	9.68	\$ 290		
D202001 1" copper	20	lf	0.118	9.000	4.160	0.000	13.16	\$ 263		
D202001 ½" thick rubber tubing, flexible, closed cell foam insulation, on ½" copper pipe	100	lf	0.089	1.126	4.299	0.000	5.43	\$ 543		
D202001 ½" thick rubber tubing, flexible, closed cell foam insulation, on ¾" copper pipe	30	lf	0.090	1.265	4.347	0.000	5.61	\$ 168		
D202001 ¾" thick rubber tubing, flexible, closed cell foam insulation, on 1" copper pipe	20	lf	0.090	1.452	4.347	0.000	5.80	\$ 116		
D202005 Hot Water Heater, Gas Fired; 30gal	1	ea	4.000	985.00	231.00	0.00	1,216.00	\$ 1,216		
SUBTOTAL									\$ 5,037	
D2030 SANITARY WASTE										
D203001 2" Sanitary Waste Piping	112	lf	0.250	11.45	7.95	0.00	19.40	\$ 2,173		
D203001 4" Sanitary Waste Piping	25	lf	0.333	14.20	10.60	0.00	24.80	\$ 620		
D203002 4" Vent Piping	20	lf	0.333	14.20	10.60	0.00	24.80	\$ 496		
D203099 Sump Pump and Basket	1	ea	2.667	119.00	94.50	0.00	213.50	\$ 214		
SUBTOTAL									\$ 3,502	
D2040 RAIN WATER DRAINAGE										
See Gutters/Downspouts								\$ -		
SUBTOTAL									\$ -	

PROTOTYPE HOME

Residential Single Family Home

Detailed Cost Estimate

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DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	EST'D COST	SUB TOTAL	TOTAL COST
D2090 OTHER										
D209001 Gas Distribution Piping	50	lf	0.059	1.95	0.75	0.00	2.70	\$ 135		
SUBTOTAL									\$ 135	
TOTAL - PLUMBING										\$ 11,777
D30 HVAC										
D3020 HEAT GENERATION SYSTEMS										
D302003 Natural Gas Furnace with 78% AFUE Rating	1	ea	6.154	2,650.00	310.00	0.00	2,960.00	\$ 2,960		
SUBTOTAL									\$ 2,960	
D3030 COOLING GENERATION SYSTEMS										
D303099 2 Ton AC Condenser Unit, 13 SEER	1	ea	7.619	1,350.00	245.00	0.00	1,595.00	\$ 1,595		
SUBTOTAL									\$ 1,595	
D3040 DISTRIBUTION SYSTEMS										
D304007 Exhaust Fan	1	ea	0.533	117.00	22.50	0.00	139.50	\$ 140		
D304007 Return/Exhaust Grille 12x24	3	ea	0.444	33.00	15.15	0.00	48.15	\$ 144		
D304001 Floor Supply Diffuser	10	ea	0.250	44.50	8.55	0.00	53.05	\$ 531		
D304001 Galvanized Sheetmetal Duct	697	lbs	0.253	2.19	8.05	0.00	10.24	\$ 7,137		
SUBTOTAL									\$ 7,952	
D3060 CONTROLS AND INSTRUMENTATION										
D306001 Thermostat	1	ea	1.000	146.00	35.50	0.00	181.50	\$ 182		
SUBTOTAL									\$ 182	
D3070 SYSTEM TESTING & BALANCING										
D307002 System Testing & Balancing	1	ls		500.00			500.00	\$ 500		
D307003 Commissioning	1	ls		500.00			500.00	\$ 500		
SUBTOTAL									\$ 1,000	
TOTAL - HVAC										\$ 13,688
D40 FIRE PROTECTION										
D4010 FIRE PROTECTION										
NONE							0.00			
SUBTOTAL									\$ -	
D4020 STANDPIPES										
NONE							0.00			
SUBTOTAL									\$ -	
TOTAL - FIRE PROTECTION										\$ -
D50 ELECTRICAL										
D5010 SERVICE & DISTRIBUTION										
D501005 Load Center NEMA 3R (200 Amp Service)	1	ea	21.288	887.60	1,055.60	0.00	1,943.20	\$ 1,943		
SUBTOTAL									\$ 1,943	
D5020 LIGHTING & POWER										
D502002 8" Diameter Compact Fluorescent Downlight	9	ea	1.000	70.00	33.50	0.00	103.50	\$ 932		
D502002 Bathroom Light Fixture	1	ea	0.667	80.00	22.50	0.00	102.50	\$ 103		
D502002 Ceiling Fan	2	ea	1.509	125.00	51.00	0.00	176.00	\$ 352		
D502002 Exterior Light	7	ea	0.500	35.00	27.50	0.00	62.50	\$ 438		
D502002 Wall Wound Duplex Receptacle	17	ea	0.615	23.00	33.50	0.00	56.50	\$ 961		
D502002 GFI Duplex Receptacle	8	ea	1.000	56.50	54.50	0.00	111.00	\$ 888		
D502002 GFI Duplex Receptacle Weatherproof	2	ea	1.330	149.00	73.00	0.00	222.00	\$ 444		
D502002 Single Gang Switch	13	ea	0.500	19.85	27.50	0.00	47.35	\$ 616		
D502002 Dryer Outlet	1	ea	2.162	60.00	118.00	0.00	178.00	\$ 178		
D502099 Air Conditioning Circuit	1	ea	0.800	23.00	43.50	0.00	66.50	\$ 67		
D502099 Furnace Circuit	1	ea	1.330	27.00	73.00	0.00	100.00	\$ 100		
D502099 Exhaust Fans (wiring only)	1	ea	0.800	19.85	43.50	0.00	63.35	\$ 63		
D502099 Range Wiring	1	ea	2.000	91.00	1.09	0.00	92.09	\$ 92		
D502099 Water Heater Wiring	1	ea	1.600	31.50	87.50	0.00	119.00	\$ 119		
D502099 Doorbell System	1	ea	0.500	30.00	16.85	0.00	46.85	\$ 47		
D502001 Allowance for Conduit and Wiring	61	fixt	0.500	31.50	27.50	0.00	59.00	\$ 3,599		
SUBTOTAL									\$ 8,996	
D5030 COMMUNICATION & SECURITY SYSTEMS										
D503003 Telephone Outlet	3	ea	0.615	23.000	33.500	0.000	56.50	\$ 170		
D503007 Data/Cable Outlet	3	ea	0.615	23.000	33.500	0.000	56.50	\$ 170		
SUBTOTAL									\$ 339	
D5090 OTHER ELECTRICAL SYSTEMS										
D509099 Smoke Detector	5	ea	1.290	126.00	43.50	0.00	169.50	\$ 848		
SUBTOTAL									\$ 848	
TOTAL - ELECTRICAL										\$ 12,126

PROTOTYPE HOME

Residential Single Family Home

Detailed Cost Estimate

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DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	ESTD COST	SUB TOTAL	TOTAL COST
E10 EQUIPMENT										
E1090 EQUIPMENT, GENERALLY										
E109004 Washer	1	ea	2.667	400.00	94.50	0.00	494.50	\$ 495		
E109004 Dryer	1	ea	5.330	500.00	140.00	0.00	640.00	\$ 640		
E109004 Dryer Vent Kit	1	ea	0.800	37.50	24.00	0.00	61.50	\$ 62		
E109004 Refrigerator	1	ea	5.143	835.00	229.00	0.00	1,064.00	\$ 1,064		
E109004 Dishwasher	1	ea	6.735	545.00	385.00	0.00	930.00	\$ 930		
E109004 Range Hood	1	ea	4.650	106.00	244.00	0.00	350.00	\$ 350		
E109004 Gas Range	1	ea	3.600	645.00	169.00	0.00	814.00	\$ 814		
SUBTOTAL									\$ 4,354	
TOTAL - EQUIPMENT										\$ 4,354
E20 FURNISHINGS										
E2010 FIXED FURNISHINGS										
SUBTOTAL									\$ -	
E2020 MOVABLE FURNISHINGS										
SUBTOTAL									NIC	
TOTAL - FURNISHINGS										\$ -
F10 SPECIAL CONSTRUCTION										
F10 SPECIAL CONSTRUCTION										
SUBTOTAL									\$ -	
TOTAL - SPECIAL CONSTRUCTION										\$ -
F20 SELECTIVE BUILDING DEMOLITION										
F2010 BUILDING ELEMENTS DEMOLITION										
SUBTOTAL									\$ -	
F2020 HAZARDOUS COMPONENTS ABATEMENT										
Excluded									\$ -	
SUBTOTAL									\$ -	
TOTAL - SELECTIVE BUILDING DEMOLITION										\$ -
G SITE PREP/DEVELOPMENT										
G10 SITE PREP / DEMOLITION										
G103099 Silt fence	250	lf	0.010	0.41	0.22	0.00	0.63	\$ 158		
G101001/5 Clear and grub	0.5	acre	9.120	0.00	641.25	0.00	641.25	\$ 321		
SUBTOTAL									\$ 478	
G20 SITE IMPROVEMENTS										
G203003 Concrete patio/sidewalk	90	sf	0.040	1.65	1.08	0.00	2.73	\$ 246		
G201003 Asphalt Paving; 2" Base + 1" Topping	1,250	sf	0.003	1.25	0.31	0.00	1.56	\$ 1,950		
G201001 Paving Subbase; 6" crushed stone	1,250	sf	0.001	0.91	0.09	0.00	1.00	\$ 1,250		
G205004 Final Grading & Seeding	22	msf	0.044	22.00	0.99	0.00	22.99	\$ 501		
G205099 Landscaping	1	ls	0.000	500.00	500.00	0.00	1,000.00	\$ 1,000		
SUBTOTAL									\$ 4,947	
G30 CIVIL MECHANICAL UTILITIES										
Water Service										
G301001 6" DIP water supply	50	lf	0.250	14.60	7.15	0.00	21.75	\$ 1,088		
Sanitary Sewer										
G302001 6" PVC sanitary sewer	50	lf	0.690	3.68	1.58	0.00	5.26	\$ 263		
Gas Service										
G306006 Gas Service Line	50	lf	0.059	1.95	0.75	0.00	2.70	\$ 135		
SUBTOTAL									\$ 1,486	
G40 ELECTRICAL UTILITIES										
G402004 Incoming Electrical Service Feeder	50	lf	0.067	3.47	2.25	0.00	5.72	\$ 286		
SUBTOTAL									\$ 286	
G90 OTHER SITE CONSTRUCTION										
SUBTOTAL									\$ -	
TOTAL - SITE DEVELOPMENT										\$ 7,196
PROJECT SUBTOTAL										\$ 174,790
MARK UP										
GENERAL COND. / PERMIT / INS./FEE										

PROTOTYPE HOME

Residential Single Family Home

Detailed Cost Estimate

Slab-On-Grade

GFA

1,458

DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	ESTD COST	SUB TOTAL	TOTAL COST
General Conditions, O.H. & Profit SUBTOTAL	11.00%							\$ 19,227	\$ 19,227	
CONTINGENCIES/ESCALATION										
DESIGN & PRICING Design and pricing contingency SUBTOTAL	2.50%							\$ 4,370	\$ 4,370	
ESCALATION To Construction Midpoint SUBTOTAL	0.52%							\$ 1,017	\$ 1,017	
TOTAL - MARK UP /CONTINGENCIES / ESCALATION									\$	24,613
PROJECT TOTAL									\$	199,403

PROTOTYPE HOME

Residential Single Family Home

Detailed Cost Estimate

Unvented Crawl Space

GFA

1,458

DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	EST'D COST	SUB TOTAL	TOTAL COST
A10 FOUNDATIONS										
A1010 STANDARD FOUNDATIONS										
A101001 CIP Strip Footings, Reinforced (3,000 psi)	9	cy	3.910	161.66	177.28	0.00	338.94	\$ 3,050		
A101001 6" CMU Foundation Walls	55	sf	0.089	2.88	4.02	0.00	6.90	\$ 380		
A101001 8" CMU Foundation Walls	374	sf	0.093	3.23	4.30	0.00	7.53	\$ 2,816		
A101001 12" CMU Foundation Walls	83	sf	0.122	4.38	7.15	0.00	11.53	\$ 957		
A101099 Drain Tile	128	lf	0.063	7.55	1.45	0.00	9.00	\$ 1,152		
A101099 Waterproofing; Spray applied 2-coats	399	sf	0.016	0.42	0.73	0.00	1.15	\$ 459		
SUBTOTAL									\$ 8,814	
A1020 SPECIAL FOUNDATIONS										
None									\$ -	
SUBTOTAL									\$ -	
A1030 LOWEST FLOOR CONSTRUCTION										
A103001 4" Slab on Grade w/ 6x6 10/10 W1.4/W1.4, (3,000 psi)	8	cy	2.610	158.76	124.39	0.00	283.15	\$ 2,265		
A103001 6 mil Thick Continous Polyethylene Vapor/Air Barrier	1,088	sf	0.002	0.06	0.11	0.00	0.17	\$ 185		
SUBTOTAL									\$ 2,450	
										\$ 11,264
A20 BASEMENT CONSTRUCTION										
A2010 BASEMENT EXCAVATION										
A201001 Excavation	84	cy	0.020	0.00	0.54	0.91	1.45	\$ 122		
A201002 Backfill & Compaction	15	cy	0.007	0.00	0.21	0.88	1.09	\$ 16		
A201099 Remove from site	69	cy	0.056	0.00	1.36	2.19	3.55	\$ 245		
SUBTOTAL									\$ 383	
A2020 BASEMENT WALLS										
A202001 8" CMU Basement Walls	193	sf	0.093	3.23	4.30	0.00	7.53	\$ 1,453		
A202001 12" CMU Basement Walls	170	sf	0.122	4.38	7.15	0.00	11.53	\$ 1,960		
A202002 Waterproofing; Spray applied 2-coats	257	sf	0.016	0.42	0.73	0.00	1.15	\$ 296		
A202003 R-10 Sprayed Insulation	384	sf	0.004	0.41	0.09	0.10	0.60	\$ 230		
SUBTOTAL									\$ 3,939	
TOTAL - BASEMENT CONSTRUCTION										\$ 4,322
B10 SUPERSTRUCTURE										
B1010 UPPER FLOOR CONSTRUCTION										
Main Floor Construction										
B101001 9½" LPI Joists @ 19.2" O.C.	0.56	mlf	17.780	1,550.00	535.00	0.00	2,085.00	\$ 1,159		
B101001 Triple 1½" LVL	115	lf	0.089	29.50	2.44	1.46	33.40	\$ 3,841		
B101003 ¾" Tongue & Groove Oxboard Subfloor	960	sf	0.010	0.82	0.31	0.00	1.13	\$ 1,085		
B101099 R-19 Rim Insulation	150	sf	0.006	0.37	0.18	0.00	0.55	\$ 83		
Second Floor Construction										
B101001 18" Floor Trusses @ 24" O.C. (20'-0" Span)	0.26	mlf	21.622	3,175.00	650.00	0.00	3,825.00	\$ 1,010		
B101003 ¾" Tongue & Groove Oxboard Subfloor	486	sf	0.010	0.82	0.31	0.00	1.13	\$ 549		
B101099 R-19 Rim Insulation	98	sf	0.006	0.37	0.18	0.00	0.55	\$ 54		
SUBTOTAL									\$ 7,780	
B1020 ROOF CONSTRUCTION										
B102001 Engineered Roof Trusses 5:12 Pitch (20'-0" Span)	480	sf	0.055	3.39	2.99	0.00	6.38	\$ 3,064		
B102001 Engineered Roof Trusses 5:12 Pitch (30'-0" Span)	630	sf	0.057	3.45	3.08	0.00	6.53	\$ 4,114		
B102001 Scissor Trusses 8:12 Pitch (23'-0" Span)	480	sf	0.058	3.51	3.17	0.00	6.68	\$ 3,206		
B102001 Girder Trusses (7'-0" Span)	1	ea	0.702	76.50	19.25	0.00	95.75	\$ 96		
B102099 2x6 Sub Facia	310	lf	0.011	0.53	0.34	0.00	0.87	\$ 270		
B102003 ½" OSB Roof Sheathing	2,440	sf	0.012	0.33	0.36	0.00	0.69	\$ 1,684		
B102099 R-44 Blown-In Roof Insulation	974	sf	0.024	0.56	0.54	0.29	1.39	\$ 1,349		
B102099 4-Mil Poly Vapor Barrier	2,440	sf	0.002	0.030	0.070	0.000	0.10	\$ 244		
B102099 1" Air Baffles	50.0	ea	0.001	1.00	1.00	0.00	2.00	\$ 100		
SUBTOTAL									\$ 14,126	
TOTAL - SUPERSTRUCTURE										\$ 21,906
B20 EXTERIOR ENCLOSURE										
B2010 EXTERIOR WALLS										
B201002 Exterior Film Wall Wrap	2,134	sf	0.002	0.13	0.06	0.00	0.19	\$ 405		
B201001 Vinyl Siding	2,427	sf	0.065	3.57	3.29	0.00	6.86	\$ 16,649		
B201001 Face Brick	25	sf	0.174	3.61	4.85	0.00	8.46	\$ 212		
B201001 ½" Oriented Strand Board Wall Sheathing	2,134	sf	0.012	0.39	0.37	0.00	0.76	\$ 1,622		
B201001 2x4 Studs 16" oc (Garage), 8 foot height	91	lf	0.192	4.48	9.76	0.00	14.24	\$ 1,296		
B201001 2x6 Studs 16" oc, 8 foot height	518	lf	0.208	6.88	10.64	0.00	17.52	\$ 9,075		
B201001 2x10 Rim Joist	128	lf	0.015	1.11	0.47	0.00	1.58	\$ 202		
B201001 2x10 Header	192	lf	0.015	1.11	0.47	0.00	1.58	\$ 303		
B201001 2x14 Header	36	lf	0.018	1.70	0.54	0.00	2.24	\$ 81		
B201002 R-19 Batt Insulation	1,790	sf	0.006	0.37	0.18	0.00	0.55	\$ 985		
B201003 ½" Gypsum Wall Board	1,361	sf	0.022	0.54	1.08	0.00	1.62	\$ 2,205		

PROTOTYPE HOME

Residential Single Family Home

Detailed Cost Estimate

Unvented Crawl Space

GFA

1,458

DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	EST'D COST	SUB TOTAL	TOTAL COST
B201002 Interior Vapor Barrier (optional)	1,361	sf	0.002	0.030	0.070	0.000	0.10	\$ 136		
B201008 Prefinished Metal Facia	310	lf	0.040	1.29	1.21	0.00	2.50	\$ 775		
B201008 Prefinished Vented Metal Soffit Panel	310	lf	0.160	6.05	4.82	0.00	10.87	\$ 3,364		
SUBTOTAL									\$ 37,310	
B2020 WINDOWS/ GLAZING (builders grade)										
B202001 Type A; 4'-0"x4'-0" Vinyl Glider	1	ea	0.889	483.52	24.00	0.00	507.52	\$ 508		
B202001 Type B; 5'-0"x4'-0" Vinyl Glider	3	ea	0.889	604.40	27.60	0.00	632.00	\$ 1,896		
B202001 Type C; 6'-0"x5'-0" Vinyl Glider	3	ea	1.000	906.60	30.00	0.00	936.60	\$ 2,810		
B202001 Type D; 6'-0"x6'-8" Vinyl Patio Glider	1	ea	5.330	1,208.80	48.00	0.00	1,256.80	\$ 1,257		
B202001 Type E; 2'-0"x3'-6" Crank Out Casement	2	ea	0.842	283.00	25.50	0.00	308.50	\$ 617		
SUBTOTAL									\$ 7,087	
B2030 EXTERIOR DOORS										
B203002 3'-0"x6'-8" Insulated Metal 6-Panel Door w/ two 8" x 6'-0" sidelites	1	ea	6.274	529.33	303.94	0.00	833.27	\$ 833		
B203004 8'-0"x7'-0" Overhead Sectional Garage Door	1	ea	8.237	1,100.96	390.23	0.00	1,491.19	\$ 1,491		
B203004 16'-0"x7'-0" Overhead Sectional Raised Panel Garage Door	1	ea	11.401	1,895.62	537.56	0.00	2,433.18	\$ 2,433		
SUBTOTAL									\$ 4,758	
TOTAL - EXTERIOR CLOSURE										\$ 49,155
B30 ROOFING										
B3010 ROOF COVERINGS										
B301001 220# Asphalt Architectural Shingles	23.0	sq	1.143	105.930	37.719	0.00	143.65	\$ 3,304		
B301003 15# Asphalt Felt	24.4	sq	0.200	4.940	6.600	0.00	11.54	\$ 282		
B301003 Ice & Water Shield	7.2	sq	0.364	102.590	12.012	0.00	114.60	\$ 819		
B301001 Ridge Shingles	75	lf	0.019	1.90	0.49	0.00	2.39	\$ 179		
B301004 Prefinished Roof Square Vent (1 sf per 200 sf area)	13	ea	0.111	12.00	3.35	0.00	15.35	\$ 200		
B301004 Linear Vent	80	lf	0.052	2.73	1.76	0.00	4.49	\$ 359		
B301004 Prefinished Drip Edge	140	lf	0.020	0.38	0.60	0.00	0.98	\$ 137		
B301004 Wall to Roof Flashings	48	lf	0.055	1.07	1.39	0.00	2.46	\$ 118		
B301004 Valley Flashing	20	lf	0.080	12.00	2.02	0.00	14.02	\$ 280		
B301005 Prefinished Aluminum Gutter	136	lf	0.067	2.58	2.27	0.00	4.85	\$ 660		
B301005 Prefinished Aluminum Downspout	60	lf	0.042	1.03	1.44	0.00	2.47	\$ 148		
SUBTOTAL									\$ 6,486	
B3020 ROOF OPENINGS										
None								\$ -		
SUBTOTAL									\$ -	
TOTAL - ROOFING										\$ 6,486
C10 INTERIOR CONSTRUCTION										
C1010 PARTITIONS										
C101001 2x4 Studs 16" oc, 8 foot height	97	lf	0.192	4.48	9.76	0.000	14.24	\$ 1,378		
C101001 2x6 Studs 16" oc, 8 foot height	47	lf	0.208	6.88	10.64	0.000	17.52	\$ 815		
C101001 5/8" Gypsum Wall board - fire taped	520	sf	0.017	0.32	0.50	0.00	0.82	\$ 426		
C101001 1/2" Gypsum Wall board - finished	1,729	sf	0.022	0.54	1.08	0.00	1.62	\$ 2,801		
SUBTOTAL									\$ 5,420	
C1020 INTERIOR DOORS (incl. frames & hdwe.)										
C102001 Interior Single Doors; Solid Core Wood, 2'-4"	4	ea	7.854	274.28	362.29	0.00	636.57	\$ 2,546		
C102001 Interior Single Doors; Solid Core Wood, 2'-6"	2	ea	7.854	289.52	362.29	0.00	651.81	\$ 1,304		
C102001 Interior Single Doors; Solid Core Wood, 2'-8"	2	ea	7.854	304.76	362.29	0.00	667.05	\$ 1,334		
C102004 Bi-Fold Door, 5'-0"	1	ea	7.568	382.50	350.68	0.00	733.18	\$ 733		
SUBTOTAL									\$ 5,917	
C1030 SPECIALTIES / MILLWORK										
C103009 Particle Board Base Cabinets; Oak Veneer	18	lf	0.320	96.60	16.20	0.00	112.80	\$ 2,030		
C103009 Particle Board Upper Cabinets; Oak Veneer	22	lf	0.213	64.40	10.80	0.00	75.20	\$ 1,654		
C103098 1'-6"x5'-0" High Pantry	1	ea	0.533	161.00	27.00	0.00	188.00	\$ 188		
C103008 P-Lam Countertops w/ Backsplash	85	sf	0.267	32.00	13.45	0.00	45.45	\$ 3,863		
C103006 Malamine Closet Shelf w/ rod	28	sf	0.076	4.24	2.30	0.00	6.54	\$ 183		
C103099 Railing, Ballusters, Newel - Oak	12	lf	0.200	37.00	6.05	0.00	43.05	\$ 517		
C103099 Oak Skirt Boards	28	lf	0.083	2.75	2.51	0.00	5.26	\$ 147		
C103099 Oak Handrail	13	lf	0.133	5.50	3.33	0.00	8.83	\$ 115		
C103099 5/4" Oak Window Surround Jamb	9	sets	1.330	62.50	40.00	0.00	102.50	\$ 923		
C103099 Ranch Casing	624	lf	0.037	1.62	1.12	0.00	2.74	\$ 1,710		
Toilet Accessories										
C103002 Toilet Roll Holder	1	ea	0.267	18.65	13.45	0.00	32.10	\$ 32		
C103002 Towel Holder	1	ea	0.278	35.00	14.05	0.00	49.05	\$ 49		
C103002 48" Vanity 2'-0" Wide x 2'-6" High	1	ea	1.500	360.00	63.13	0.00	423.13	\$ 423		
C103002 P-Lam Countertop w/ backsplash	1	ea	1.500	360.00	63.13	0.00	423.13	\$ 423		
C103098 2'-0" Wide x 6'-0" High Linen Closet Faceframe	1	ea	0.267	32.000	13.450	0.000	45.45	\$ 45		
C103002 Mirrors w/out shelves	12	sf	0.111	17.92	5.63	0.00	23.55	\$ 283		
SUBTOTAL									\$ 12,585	

PROTOTYPE HOME

Residential Single Family Home

Detailed Cost Estimate

Unvented Crawl Space

GFA

1,458

DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	EST'D COST	SUB TOTAL	TOTAL COST
TOTAL - INTERIOR CONSTRUCTION										\$ 23,922
C20 STAIRCASES										
C2010 STAIR CONSTRUCTION										
C201002 CIP Concrete Stoop (8'-0" Wide; 2-risers)	4	cy	4.888	202.075	221.600	0.000	423.68	\$ 1,695		
C201001 Wood Stairs, for carpet	14	ea	0.410	55.00	12.35	0.00	67.35	\$ 943		
SUBTOTAL									\$ 2,638	
C2020 STAIR FINISHES										
See Finishes										
SUBTOTAL									\$ -	
TOTAL - STAIRCASES										\$ 2,638
C30 INTERIOR FINISHES										
C3010 WALL FINISHES										
C301005 PT; painted gyp	2,946	sf	0.010	0.11	0.27	0.00	0.38	\$ 1,119		
SUBTOTAL									\$ 1,119	
C3020 FLOOR FINISHES										
C302005 CPT-1: Carpet & Pad	76	sy	0.162	27.99	4.59	0.00	32.58	\$ 2,476		
C302004 RF-1: Sheet Vinyl	345	sf	0.032	3.75	0.91	0.00	4.66	\$ 1,608		
C302099 Wood Base; 3-1/2" Oak	339	lf	0.033	3.38	1.00	0.00	4.38	\$ 1,485		
C302099 Base Shoe (Oak quarter-round)	339	ea	0.030	0.45	0.91	0.00	1.36	\$ 461		
SUBTOTAL									\$ 6,030	
C3030 CEILING FINISHES										
C303003 ½" Gypsum Board	842	sf	0.330	0.57	1.54	0.00	2.11	\$ 1,777		
C303003 ¾" Vaulted Gypsum Board	480	sf	0.396	0.57	1.54	0.00	2.11	\$ 1,013		
C303099 Spray Applied Texture, add for above	1,322	sf	0.010	0.05	0.27	0.00	0.32	\$ 423		
SUBTOTAL									\$ 3,212	
TOTAL - INTERIOR FINISHES										\$ 10,362
D10 CONVEYING SYSTEMS										
D1010 ELEVATOR										
SUBTOTAL									\$ -	
D1020 ESCALATORS & MOVING WALKWAYS										
SUBTOTAL									\$ -	
D1030 OTHER CONVEYING SYSTEMS										
SUBTOTAL									\$ -	
TOTAL - CONVEYING SYSTEMS										\$ -
D20 PLUMBING										
D2010 PLUMBING FIXTURES										
D201001 Water Closet	1	ea	3.019	265.00	157.00	0.00	422.00	\$ 422		
D201003 Lavatory Sink	1	ea	2.500	325.00	130.00	0.00	455.00	\$ 455		
D201005 5' Tub and Shower Surround - 1 Piece	1	ea	4.000	780.00	127.00	0.00	907.00	\$ 907		
D201004 2 Compartment Sink Unit	1	ea	3.330	400.00	106.00	0.00	506.00	\$ 506		
D201099 Laundry Tub	1	ea	2.462	145.00	78.50	0.00	223.50	\$ 224		
D201004 Kitchen Faucet	1	ea	1.133	77.65	40.30	0.00	117.95	\$ 118		
D201003 Lavatory Faucet	1	ea	1.201	62.50	42.50	0.00	105.00	\$ 105		
D201005 Bath/Shower Faucet	1	ea	1.000	86.50	35.50	0.00	122.00	\$ 122		
D201099 Laundry Faucet	1	ea	0.800	171.00	28.50	0.00	199.50	\$ 200		
D201099 Hose Bib	2	ea	0.333	10.60	11.80	0.00	22.40	\$ 45		
SUBTOTAL									\$ 3,103	
D2020 DOMESTIC WATER DISTRIBUTION										
SOFT COLD WATER-										
D202001 ½" copper	150	lf	0.099	3.97	3.50	0.00	7.47	\$ 1,121		
D202001 ¾" copper	32	lf	0.105	5.95	3.73	0.00	9.68	\$ 310		
D202001 1" copper	20	lf	0.118	9.00	4.16	0.00	13.16	\$ 263		
HOT WATER-										
D202001 ½" copper	100	lf	0.099	3.970	3.500	0.000	7.47	\$ 747		
D202001 ¾" copper	30	lf	0.105	5.950	3.730	0.000	9.68	\$ 290		
D202001 1" copper	20	lf	0.118	9.000	4.160	0.000	13.16	\$ 263		
D202001 ½" thick rubber tubing, flexible, closed cell foam insulation, on ½" copper pipe	100	lf	0.089	1.126	4.299	0.000	5.43	\$ 543		
D202001 ½" thick rubber tubing, flexible, closed cell foam insulation, on ¾" copper pipe	30	lf	0.090	1.265	4.347	0.000	5.61	\$ 168		
D202001 ¾" thick rubber tubing, flexible, closed cell foam insulation, on 1" copper pipe	20	lf	0.090	1.452	4.347	0.000	5.80	\$ 116		
D202005 Hot Water Heater, Gas Fired; 30gal	1	ea	4.000	985.00	231.00	0.00	1,216.00	\$ 1,216		
SUBTOTAL									\$ 5,037	

PROTOTYPE HOME

Residential Single Family Home

Detailed Cost Estimate

Unvented Crawl Space

GFA

1,458

DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	EST'D COST	SUB TOTAL	TOTAL COST
D2030 SANITARY WASTE										
D203001 2" Sanitary Waste Piping	112	lf	0.250	11.45	7.95	0.00	19.40	\$ 2,173		
D203001 4" Sanitary Waste Piping	25	lf	0.333	14.20	10.60	0.00	24.80	\$ 620		
D203002 4" Vent Piping	20	lf	0.333	14.20	10.60	0.00	24.80	\$ 496		
D203099 Sump Pump and Basket	1	ea	2.667	119.00	94.50	0.00	213.50	\$ 214		
SUBTOTAL									\$ 3,502	
D2040 RAIN WATER DRAINAGE										
See Gutters/Downspouts								\$ -		
SUBTOTAL									\$ -	
D2090 OTHER										
D209001 Gas Distribution Piping	50	lf	0.059	1.95	0.75	0.00	2.70	\$ 135		
SUBTOTAL									\$ 135	
TOTAL - PLUMBING										\$ 11,777
D30 HVAC										
D3020 HEAT GENERATION SYSTEMS										
D302003 Natural GasFurnace with78% AFUE Rating	1	ea	6.154	2,650.00	310.00	0.00	2,960.00	\$ 2,960		
SUBTOTAL									\$ 2,960	
D3030 COOLING GENERATION SYSTEMS										
D303099 2 Ton AC Condenser Unit , 13 SEER	1	ea	7.619	1,350.00	245.00	0.00	1,595.00	\$ 1,595		
SUBTOTAL									\$ 1,595	
D3040 DISTRIBUTION SYSTEMS										
D304007 Exhaust Fan	2	ea	0.533	117.00	22.50	0.00	139.50	\$ 279		
D304007 Return/Exhaust Grille 12x24	5	ea	0.444	33.00	15.15	0.00	48.15	\$ 241		
D304001 Floor Supply Diffuser	12	ea	0.250	44.50	8.55	0.00	53.05	\$ 637		
D304001 Galvanized Sheetmetal Duct	715	lbs	0.253	2.19	8.05	0.00	10.24	\$ 7,322		
SUBTOTAL									\$ 8,478	
D3060 CONTROLS AND INSTRUMENTATION										
D306001 Thermostat	1	ea	1.000	146.00	35.50	0.00	181.50	\$ 182		
SUBTOTAL									\$ 182	
D3070 SYSTEM TESTING & BALANCING										
D307002 System Testing & Balancing	1	ls		500.00			500.00	\$ 500		
D307003 Commissioning	1	ls		500.00			500.00	\$ 500		
SUBTOTAL									\$ 1,000	
TOTAL - HVAC										\$ 14,214
D40 FIRE PROTECTION										
D4010 FIRE PROTECTION										
NONE							0.00		\$ -	
SUBTOTAL									\$ -	
D4020 STANDPIPES										
NONE							0.00		\$ -	
SUBTOTAL									\$ -	
TOTAL - FIRE PROTECTION										\$ -
D50 ELECTRICAL										
D5010 SERVICE & DISTRIBUTION										
D501005 Load Center NEMA 3R (200 Amp Service)	1	ea	21.288	887.60	1,055.60	0.00	1,943.20	\$ 1,943		
SUBTOTAL									\$ 1,943	
D5020 LIGHTING & POWER										
D502002 8" Diameter Compact Fluorescent Downlight	9	ea	1.000	70.00	33.50	0.00	103.50	\$ 932		
D502002 Bathroom Light Fixture	1	ea	0.667	80.00	22.50	0.00	102.50	\$ 103		
D502002 Ceiling Fan	2	ea	1.509	125.00	51.00	0.00	176.00	\$ 352		
D502002 Exterior Light	7	ea	0.500	35.00	27.50	0.00	62.50	\$ 438		
D502002 Wall Wount Duplex Receptacle	17	ea	0.615	23.00	33.50	0.00	56.50	\$ 961		
D502002 GFI Duplex Receptacle	8	ea	1.000	56.50	54.50	0.00	111.00	\$ 888		
D502002 GFI Duplex Receptacle Weatherproof	2	ea	1.330	149.00	73.00	0.00	222.00	\$ 444		
D502002 Single Gang Switch	13	ea	0.500	19.85	27.50	0.00	47.35	\$ 616		
D502002 Dryer Outlet	1	ea	2.162	60.00	118.00	0.00	178.00	\$ 178		
D502099 Air Conditioning Circuit	1	ea	0.800	23.00	43.50	0.00	66.50	\$ 67		
D502099 Furnace Circuit	1	ea	1.330	27.00	73.00	0.00	100.00	\$ 100		
D502099 Exhaust Fans (wiring only)	2	ea	0.800	19.85	43.50	0.00	63.35	\$ 127		
D502099 Range Wiring	1	ea	2.000	91.00	1.09	0.00	92.09	\$ 92		
D502099 Water Heater Wiring	1	ea	1.600	31.50	87.50	0.00	119.00	\$ 119		
D502099 Doorbell System	1	ea	0.500	30.00	16.85	0.00	46.85	\$ 47		
D502001 Allowance for Conduit and Wiring	61	fixt	0.500	31.50	27.50	0.00	59.00	\$ 3,599		
SUBTOTAL									\$ 9,060	

PROTOTYPE HOME

Residential Single Family Home

Detailed Cost Estimate

Unvented Crawl Space

GFA

1,458

DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	EST'D COST	SUB TOTAL	TOTAL COST
D5030 COMMUNICATION & SECURITY SYSTEMS										
D503003 Telephone Outlet	3	ea	0.615	23.000	33.500	0.000	56.50	\$ 170		
D503007 Data/Cable Outlet	3	ea	0.615	23.000	33.500	0.000	56.50	\$ 170		
SUBTOTAL									\$ 339	
D5090 OTHER ELECTRICAL SYSTEMS										
D509099 Smoke Detector	5	ea	1.290	126.00	43.50	0.00	169.50	\$ 848		
SUBTOTAL									\$ 848	
TOTAL - ELECTRICAL										\$ 12,189
E10 EQUIPMENT										
E1090 EQUIPMENT, GENERALLY										
E109004 Washer	1	ea	2.667	400.00	94.50	0.00	494.50	\$ 495		
E109004 Dryer	1	ea	5.330	500.00	140.00	0.00	640.00	\$ 640		
E109004 Dryer Vent Kit	1	ea	0.800	37.50	24.00	0.00	61.50	\$ 62		
E109004 Refrigerator	1	ea	5.143	835.00	229.00	0.00	1,064.00	\$ 1,064		
E109004 Dishwasher	1	ea	6.735	545.00	385.00	0.00	930.00	\$ 930		
E109004 Range Hood	1	ea	4.650	106.00	244.00	0.00	350.00	\$ 350		
E109004 Gas Range	1	ea	3.600	645.00	169.00	0.00	814.00	\$ 814		
SUBTOTAL									\$ 4,354	
TOTAL - EQUIPMENT										\$ 4,354
E20 FURNISHINGS										
E2010 FIXED FURNISHINGS										
SUBTOTAL									\$ -	
E2020 MOVABLE FURNISHINGS										
SUBTOTAL									NIC	
TOTAL - FURNISHINGS										\$ -
F10 SPECIAL CONSTRUCTION										
F10 SPECIAL CONSTRUCTION										
SUBTOTAL									\$ -	
TOTAL - SPECIAL CONSTRUCTION										\$ -
F20 SELECTIVE BUILDING DEMOLITION										
F2010 BUILDING ELEMENTS DEMOLITION										
SUBTOTAL									\$ -	
F2020 HAZARDOUS COMPONENTS ABATEMENT										
Excluded									\$ -	
SUBTOTAL									\$ -	
TOTAL - SELECTIVE BUILDING DEMOLITION										\$ -
G SITE PREP/DEVELOPMENT										
G10 SITE PREP / DEMOLITION										
G103099 Silt fence	250	lf	0.010	0.41	0.22	0.00	0.63	\$ 158		
G101001/5 Clear and grub	0.5	acre	9.120	0.00	641.25	0.00	641.25	\$ 321		
SUBTOTAL									\$ 478	
G20 SITE IMPROVEMENTS										
G203003 Concrete patio/sidewalk	90	sf	0.040	1.65	1.08	0.00	2.73	\$ 246		
G201003 Asphalt Paving; 2" Base + 1" Topping	1,250	sf	0.003	1.25	0.31	0.00	1.56	\$ 1,950		
G201001 Paving Subbase; 6" crushed stone	1,250	sf	0.001	0.91	0.09	0.00	1.00	\$ 1,250		
G205004 Final Grading & Seeding	22	msf	0.044	22.00	0.99	0.00	22.99	\$ 501		
G205099 Landscaping	1	ls	0.000	500.00	500.00	0.00	1,000.00	\$ 1,000		
SUBTOTAL									\$ 4,947	
G30 CIVIL MECHANICAL UTILITIES										
Water Service										
G301001 6" DIP water supply	50	lf	0.250	14.60	7.15	0.00	21.75	\$ 1,088		
Sanitary Sewer										
G302001 6" PVC sanitary sewer	50	lf	0.690	3.68	1.58	0.00	5.26	\$ 263		
Gas Service										
G306006 Gas Service Line	50	lf	0.059	1.95	0.75	0.00	2.70	\$ 135		
SUBTOTAL									\$ 1,486	
G40 ELECTRICAL UTILITIES										
G402004 Incoming Electrical Service Feeder	50	lf	0.067	3.47	2.25	0.00	5.72	\$ 286		
SUBTOTAL									\$ 286	

PROTOTYPE HOME

Residential Single Family Home

Detailed Cost Estimate

Unvented Crawl Space

GFA

1,458

DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	EST'D COST	SUB TOTAL	TOTAL COST
G90 OTHER SITE CONSTRUCTION SUBTOTAL									\$ -	
TOTAL - SITE DEVELOPMENT										\$ 7,196
PROJECT SUBTOTAL										\$ 179,787
MARK UP										
GENERAL COND. / PERMIT / INS./FEE General Conditions, O.H. & Profit SUBTOTAL	11.00%							\$ 19,777	\$ 19,777	
CONTINGENCIES/ESCALATION										
DESIGN & PRICING Design and pricing contingency SUBTOTAL	2.50%							\$ 4,495	\$ 4,495	
ESCALATION To Construction Midpoint SUBTOTAL	0.52%							\$ 1,046	\$ 1,046	
TOTAL - MARK UP /CONTINGENCIES / ESCALATION										\$ 25,317
PROJECT TOTAL										\$ 205,104

PROTOTYPE HOME

Residential Single Family Home

Detailed Cost Estimate

Vented Crawlspace

GFA

1,458

DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	EST'D COST	SUB TOTAL	TOTAL COST
A10 FOUNDATIONS										
A1010 STANDARD FOUNDATIONS										
A101001 CIP Strip Footings, Reinforced (3,000 psi)	9	cy	3.910	161.66	177.28	0.00	338.94	\$ 3,050		
A101001 6" CMU Foundation Walls	55	sf	0.089	2.88	4.02	0.00	6.90	\$ 380		
A101001 8" CMU Foundation Walls	374	sf	0.093	3.23	4.30	0.00	7.53	\$ 2,816		
A101001 12" CMU Foundation Walls	83	sf	0.122	4.38	7.15	0.00	11.53	\$ 957		
A101099 Drain Tile	128	lf	0.063	7.55	1.45	0.00	9.00	\$ 1,152		
A101099 Waterproofing; Spray applied 2-coats	399	sf	0.016	0.42	0.73	0.00	1.15	\$ 459		
SUBTOTAL									\$ 8,814	
A1020 SPECIAL FOUNDATIONS										
None									\$ -	
SUBTOTAL									\$ -	
A1030 LOWEST FLOOR CONSTRUCTION										
A103001 4" Slab on Grade w/ 6x6 10/10 W1.4/W1.4, (3,000 psi)	8	cy	2.610	158.76	124.39		283.15	\$ 2,265		
SUBTOTAL									\$ 2,265	
										\$ 11,079
A20 BASEMENT CONSTRUCTION										
A2010 BASEMENT EXCAVATION										
A201001 Excavation	84	cy	0.020	0.00	0.54	0.91	1.45	\$ 122		
A201002 Backfill & Compaction	15	cy	0.007	0.00	0.21	0.88	1.09	\$ 16		
A201099 Remove from site	69	cy	0.056	0.00	1.36	2.19	3.55	\$ 245		
SUBTOTAL									\$ 383	
A2020 BASEMENT WALLS										
A202001 8" CMU Basement Walls	193	sf	0.093	3.23	4.30	0.00	7.53	\$ 1,453		
A202001 12" CMU Basement Walls	170	sf	0.122	4.38	7.15	0.00	11.53	\$ 1,960		
A202002 Waterproofing; Spray applied 2-coats	257	sf	0.016	0.42	0.73	0.00	1.15	\$ 296		
SUBTOTAL									\$ 3,709	
TOTAL - BASEMENT CONSTRUCTION										\$ 4,092
B10 SUPERSTRUCTURE										
B1010 UPPER FLOOR CONSTRUCTION										
Main Floor Construction										
B101001 9½" LPI Joists @ 19.2" O.C.	0.56	mlf	17.780	1,550.00	535.00	0.00	2,085.00	\$ 1,159		
B101001 Triple 1½" LVL	115	lf	0.089	29.50	2.44	1.46	33.40	\$ 3,841		
B101003 ¾" Tongue & Groove Oxboard Subfloor	960	sf	0.010	0.82	0.31	0.00	1.13	\$ 1,085		
B101099 R-38 Floor Insulation	960	sf	0.006	0.95	0.18	0.00	1.13	\$ 1,085		
B101099 R-19 Rim Insulation	150	sf	0.006	0.37	0.18	0.00	0.55	\$ 83		
Second Floor Construction										
B101001 18" Floor Trusses @ 24" O.C. (20'-0" Span)	0.26	mlf	21.622	3,175.00	650.00	0.00	3,825.00	\$ 1,010		
B101003 ¾" Tongue & Groove Oxboard Subfloor	486	sf	0.010	0.82	0.31	0.00	1.13	\$ 549		
B101099 R-19 Rim Insulation	98	sf	0.006	0.37	0.18	0.00	0.55	\$ 54		
SUBTOTAL									\$ 8,865	
B1020 ROOF CONSTRUCTION										
B102001 Engineered Roof Trusses 5:12 Pitch (20'-0" Span)	480	sf	0.055	3.39	2.99	0.00	6.38	\$ 3,064		
B102001 Engineered Roof Trusses 5:12 Pitch (30'-0" Span)	630	sf	0.057	3.45	3.08	0.00	6.53	\$ 4,114		
B102001 Scissor Trusses 8:12 Pitch (23'-0" Span)	480	sf	0.058	3.51	3.17	0.00	6.68	\$ 3,206		
B102001 Girder Trusses (7'-0" Span)	1	ea	0.702	76.50	19.25	0.00	95.75	\$ 96		
B102099 2x6 Sub Facia	310	lf	0.011	0.53	0.34	0.00	0.87	\$ 270		
B102003 ½" OSB Roof Sheathing	2,440	sf	0.012	0.33	0.36	0.00	0.69	\$ 1,684		
B102099 R-44 Blown-In Roof Insulation	974	sf	0.024	0.56	0.54	0.29	1.39	\$ 1,349		
B102099 4-Mil Poly Vapor Barrier	2,440	sf	0.002	0.030	0.070	0.000	0.10	\$ 244		
B102099 1" Air Baffles	50.0	ea	0.001	1.00	1.00	0.00	2.00	\$ 100		
SUBTOTAL									\$ 14,126	
TOTAL - SUPERSTRUCTURE										\$ 22,991
B20 EXTERIOR ENCLOSURE										
B2010 EXTERIOR WALLS										
B201002 Exterior Film Wall Wrap	2,134	sf	0.002	0.13	0.06	0.00	0.19	\$ 405		
B201001 Vinyl Siding	2,427	sf	0.065	3.57	3.29	0.00	6.86	\$ 16,649		
B201001 Face Brick	25	sf	0.174	3.61	4.85	0.00	8.46	\$ 212		
B201001 ½" Oriented Strand Board Wall Sheathing	2,134	sf	0.012	0.39	0.37	0.00	0.76	\$ 1,622		
B201001 2x4 Studs 16" oc (Garage), 8 foot height	91	lf	0.192	4.48	9.76	0.00	14.24	\$ 1,296		
B201001 2x6 Studs 16" oc, 8 foot height	518	lf	0.208	6.88	10.64	0.00	17.52	\$ 9,075		
B201001 2x10 Rim Joist	128	lf	0.015	1.11	0.47	0.00	1.58	\$ 202		
B201001 2x10 Header	192	lf	0.015	1.11	0.47	0.00	1.58	\$ 303		
B201001 2x14 Header	36	lf	0.018	1.70	0.54	0.00	2.24	\$ 81		
B201002 R-19 Batt Insulation	1,790	sf	0.006	0.37	0.18	0.00	0.55	\$ 985		
B201003 ½" Gypsum Wall Board	1,361	sf	0.022	0.54	1.08	0.00	1.62	\$ 2,205		
B201002 Interior Vapor Barrier (optional)	1,361	sf	0.002	0.030	0.070	0.000	0.10	\$ 136		

PROTOTYPE HOME

Residential Single Family Home

Detailed Cost Estimate

Vented Crawlspace

GFA

1,458

DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	EST'D COST	SUB TOTAL	TOTAL COST
B201008 Prefinished Metal Facia	310	lf	0.040	1.29	1.21	0.00	2.50	\$ 775		
B201008 Prefinished Vented Metal Soffit Panel	310	lf	0.160	6.05	4.82	0.00	10.87	\$ 3,364		
B201008 Aluminum Louver, Vented, to Crawlspace (24"x30")	6	ea	0.333	32.00	10.05	0.00	42.05	\$ 252		
SUBTOTAL									\$ 37,562	
B2020 WINDOWS/ GLAZING (builders grade)										
B202001 Type A; 4'-0"x4'-0" Vinyl Glider	1	ea	0.889	483.52	24.00	0.00	507.52	\$ 508		
B202001 Type B; 5'-0"x4'-0" Vinyl Glider	3	ea	0.889	604.40	27.60	0.00	632.00	\$ 1,896		
B202001 Type C; 6'-0"x5'-0" Vinyl Glider	3	ea	1.000	906.60	30.00	0.00	936.60	\$ 2,810		
B202001 Type D; 6'-0"x6'-8" Vinyl Patio Glider	1	ea	5.330	1,208.80	48.00	0.00	1,256.80	\$ 1,257		
B202001 Type E; 2'-0"x3'-6" Crank Out Casement	2	ea	0.842	283.00	25.50	0.00	308.50	\$ 617		
SUBTOTAL									\$ 7,087	
B2030 EXTERIOR DOORS										
B203002 3'-0"x6'-8" Insulated Metal 6-Panel Door w/ two 8" x 6'-0" sidelites	1	ea	6.274	529.33	303.94	0.00	833.27	\$ 833		
B203004 8'-0"x7'-0" Overhead Sectional Garage Door	1	ea	8.237	1,100.96	390.23	0.00	1,491.19	\$ 1,491		
B203004 16'-0"x7'-0" Overhead Sectional Raised Panel Garage Door	1	ea	11.401	1,895.62	537.56	0.00	2,433.18	\$ 2,433		
SUBTOTAL									\$ 4,758	
TOTAL - EXTERIOR CLOSURE										\$ 49,407
B30 ROOFING										
B3010 ROOF COVERINGS										
B301001 220# Asphalt Architectural Shingles	23.0	sq	1.143	105.930	37.719	0.00	143.65	\$ 3,304		
B301003 15# Asphalt Felt	24.4	sq	0.200	4.940	6.600	0.00	11.54	\$ 282		
B301003 Ice & Water Shield	7.2	sq	0.364	102.590	12.012	0.00	114.60	\$ 819		
B301001 Ridge Shingles	75	lf	0.019	1.90	0.49	0.00	2.39	\$ 179		
B301004 Prefinished Roof Square Vent (1 sf per 200 sf area)	13	ea	0.111	12.00	3.35	0.00	15.35	\$ 200		
B301004 Linear Vent	80	lf	0.052	2.73	1.76	0.00	4.49	\$ 359		
B301004 Prefinished Drip Edge	140	lf	0.020	0.38	0.60	0.00	0.98	\$ 137		
B301004 Wall to Roof Flashings	48	lf	0.055	1.07	1.39	0.00	2.46	\$ 118		
B301004 Valley Flashing	20	lf	0.080	12.00	2.02	0.00	14.02	\$ 280		
B301005 Prefinished Aluminum Gutter	136	lf	0.067	2.58	2.27	0.00	4.85	\$ 660		
B301005 Prefinished Aluminum Downspout	60	lf	0.042	1.03	1.44	0.00	2.47	\$ 148		
SUBTOTAL									\$ 6,486	
B3020 ROOF OPENINGS										
None								\$ -		
SUBTOTAL									\$ -	
TOTAL - ROOFING										\$ 6,486
C10 INTERIOR CONSTRUCTION										
C1010 PARTITIONS										
C101001 2x4 Studs 16" oc, 8 foot height	97	lf	0.192	4.48	9.76	0.000	14.24	\$ 1,378		
C101001 2x6 Studs 16" oc, 8 foot height	47	lf	0.208	6.88	10.64	0.000	17.52	\$ 815		
C101001 5/8" Gypsum Wall board - fire taped	520	sf	0.017	0.32	0.50	0.00	0.82	\$ 426		
C101001 1/2" Gypsum Wall board - finished	1,729	sf	0.022	0.54	1.08	0.00	1.62	\$ 2,801		
SUBTOTAL									\$ 5,420	
C1020 INTERIOR DOORS (incl. frames & hdwe.)										
C102001 Interior Single Doors; Solid Core Wood, 2'-4"	4	ea	7.854	274.28	362.29	0.00	636.57	\$ 2,546		
C102001 Interior Single Doors; Solid Core Wood, 2'-6"	2	ea	7.854	289.52	362.29	0.00	651.81	\$ 1,304		
C102001 Interior Single Doors; Solid Core Wood, 2'-8"	2	ea	7.854	304.76	362.29	0.00	667.05	\$ 1,334		
C102004 Bi-Fold Door, 5'-0"	1	ea	7.568	382.50	350.68	0.00	733.18	\$ 733		
SUBTOTAL									\$ 5,917	
C1030 SPECIALTIES / MILLWORK										
C103009 Particle Board Base Cabinets; Oak Veneer	18	lf	0.320	96.60	16.20	0.00	112.80	\$ 2,030		
C103009 Particle Board Upper Cabinets; Oak Veneer	22	lf	0.213	64.40	10.80	0.00	75.20	\$ 1,654		
C103098 1'-6"x5'-0" High Pantry	1	ea	0.533	161.00	27.00	0.00	188.00	\$ 188		
C103008 P-Lam Countertops w/ Backsplash	85	sf	0.267	32.00	13.45	0.00	45.45	\$ 3,863		
C103006 Malamine Closet Shelf w/ rod	28	sf	0.076	4.24	2.30	0.00	6.54	\$ 183		
C103099 Railing, Ballusters, Newel - Oak	12	lf	0.200	37.00	6.05	0.00	43.05	\$ 517		
C103099 Oak Skirt Boards	28	lf	0.083	2.75	2.51	0.00	5.26	\$ 147		
C103099 Oak Handrail	13	lf	0.133	5.50	3.33	0.00	8.83	\$ 115		
C103099 5/4" Oak Window Surround Jamb	9	sets	1.330	62.50	40.00	0.00	102.50	\$ 923		
C103099 Ranch Casing	624	lf	0.037	1.62	1.12	0.00	2.74	\$ 1,710		
Toilet Accessories										
C103002 Toilet Roll Holder	1	ea	0.267	18.65	13.45	0.00	32.10	\$ 32		
C103002 Towel Holder	1	ea	0.278	35.00	14.05	0.00	49.05	\$ 49		
C103002 48" Vanity 2'-0" Wide x 2'-6" High	1	ea	1.500	360.00	63.13	0.00	423.13	\$ 423		
C103002 P-Lam Countertop w/ backsplash	1	ea	1.500	360.00	63.13	0.00	423.13	\$ 423		
C103098 2'-0" Wide x 6'-0" High Linen Closet Faceframe	1	ea	0.267	32.000	13.450	0.000	45.45	\$ 45		
C103002 Mirrors w/out shelves	12	sf	0.111	17.92	5.63	0.00	23.55	\$ 283		
SUBTOTAL									\$ 12,585	

PROTOTYPE HOME

Residential Single Family Home

Detailed Cost Estimate

Vented Crawlspace

GFA

1,458

DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	ESTD COST	SUB TOTAL	TOTAL COST
TOTAL - INTERIOR CONSTRUCTION										\$ 23,922
C20 STAIRCASES										
C2010 STAIR CONSTRUCTION										
C201002 CIP Concrete Stoop (8'-0" Wide; 2-risers)	4	cy	4.888	202.075	221.600	0.000	423.68	\$ 1,695		
C201001 Wood Stairs, for carpet	14	ea	0.410	55.00	12.35	0.00	67.35	\$ 943		
SUBTOTAL									\$ 2,638	
C2020 STAIR FINISHES										
See Finishes										
SUBTOTAL									\$ -	
TOTAL - STAIRCASES										\$ 2,638
C30 INTERIOR FINISHES										
C3010 WALL FINISHES										
C301005 PT; painted gyp	2,946	sf	0.010	0.11	0.27	0.00	0.38	\$ 1,119		
SUBTOTAL									\$ 1,119	
C3020 FLOOR FINISHES										
C302005 CPT-1: Carpet & Pad	76	sy	0.162	27.99	4.59	0.00	32.58	\$ 2,476		
C302004 RF-1: Sheet Vinyl	345	sf	0.032	3.75	0.91	0.00	4.66	\$ 1,608		
C302099 Wood Base; 3-1/2" Oak	339	lf	0.033	3.38	1.00	0.00	4.38	\$ 1,485		
C302099 Base Shoe (Oak quarter-round)	339	ea	0.030	0.45	0.91	0.00	1.36	\$ 461		
SUBTOTAL									\$ 6,030	
C3030 CEILING FINISHES										
C303003 ½" Gypsum Board	842	sf	0.330	0.57	1.54	0.00	2.11	\$ 1,777		
C303003 ¾" Vaulted Gypsum Board	480	sf	0.396	0.57	1.54	0.00	2.11	\$ 1,013		
C303099 Spray Applied Texture, add for above	1,322	sf	0.010	0.05	0.27	0.00	0.32	\$ 423		
SUBTOTAL									\$ 3,212	
TOTAL - INTERIOR FINISHES										\$ 10,362
D10 CONVEYING SYSTEMS										
D1010 ELEVATOR										
SUBTOTAL									\$ -	
D1020 ESCALATORS & MOVING WALKWAYS										
SUBTOTAL									\$ -	
D1030 OTHER CONVEYING SYSTEMS										
SUBTOTAL									\$ -	
TOTAL - CONVEYING SYSTEMS										\$ -
D20 PLUMBING										
D2010 PLUMBING FIXTURES										
D201001 Water Closet	1	ea	3.019	265.00	157.00	0.00	422.00	\$ 422		
D201003 Lavatory Sink	1	ea	2.500	325.00	130.00	0.00	455.00	\$ 455		
D201005 5' Tub and Shower Surround - 1 Piece	1	ea	4.000	780.00	127.00	0.00	907.00	\$ 907		
D201004 2 Compartment Sink Unit	1	ea	3.330	400.00	106.00	0.00	506.00	\$ 506		
D201099 Laundry Tub	1	ea	2.462	145.00	78.50	0.00	223.50	\$ 224		
D201004 Kitchen Faucet	1	ea	1.133	77.65	40.30	0.00	117.95	\$ 118		
D201003 Lavatory Faucet	1	ea	1.201	62.50	42.50	0.00	105.00	\$ 105		
D201005 Bath/Shower Faucet	1	ea	1.000	86.50	35.50	0.00	122.00	\$ 122		
D201099 Laundry Faucet	1	ea	0.800	171.00	28.50	0.00	199.50	\$ 200		
D201099 Hose Bib	2	ea	0.333	10.60	11.80	0.00	22.40	\$ 45		
SUBTOTAL									\$ 3,103	
D2020 DOMESTIC WATER DISTRIBUTION										
SOFT COLD WATER-										
D202001 ½" copper	150	lf	0.099	3.97	3.50	0.00	7.47	\$ 1,121		
D202001 ¾" copper	32	lf	0.105	5.95	3.73	0.00	9.68	\$ 310		
D202001 1" copper	20	lf	0.118	9.00	4.16	0.00	13.16	\$ 263		
HOT WATER-										
D202001 ½" copper	100	lf	0.099	3.970	3.500	0.000	7.47	\$ 747		
D202001 ¾" copper	30	lf	0.105	5.950	3.730	0.000	9.68	\$ 290		
D202001 1" copper	20	lf	0.118	9.000	4.160	0.000	13.16	\$ 263		
D202001 ½" thick rubber tubing, flexible, closed cell foam insulation, on ½" copper pipe	100	lf	0.089	1.126	4.299	0.000	5.43	\$ 543		
D202001 ½" thick rubber tubing, flexible, closed cell foam insulation, on ¾" copper pipe	30	lf	0.090	1.265	4.347	0.000	5.61	\$ 168		
D202001 ¾" thick rubber tubing, flexible, closed cell foam insulation, on 1" copper pipe	20	lf	0.090	1.452	4.347	0.000	5.80	\$ 116		
D202005 Hot Water Heater, Gas Fired; 30gal	1	ea	4.000	985.00	231.00	0.00	1,216.00	\$ 1,216		
SUBTOTAL									\$ 5,037	

PROTOTYPE HOME

Residential Single Family Home

Detailed Cost Estimate

Vented Crawspace

GFA

1,458

DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	EST'D COST	SUB TOTAL	TOTAL COST
D2030 SANITARY WASTE										
D203001 2" Sanitary Waste Piping	112	lf	0.250	11.45	7.95	0.00	19.40	\$ 2,173		
D203001 4" Sanitary Waste Piping	25	lf	0.333	14.20	10.60	0.00	24.80	\$ 620		
D203002 4" Vent Piping	20	lf	0.333	14.20	10.60	0.00	24.80	\$ 496		
D203099 Sump Pump and Basket	1	ea	2.667	119.00	94.50	0.00	213.50	\$ 214		
SUBTOTAL									\$ 3,502	
D2040 RAIN WATER DRAINAGE										
See Gutters/Downspouts								\$ -		
SUBTOTAL									\$ -	
D2090 OTHER										
D209001 Gas Distribution Piping	50	lf	0.059	1.95	0.75	0.00	2.70	\$ 135		
SUBTOTAL									\$ 135	
TOTAL - PLUMBING										\$ 11,777
D30 HVAC										
D3020 HEAT GENERATION SYSTEMS										
D302003 Natural Gas Furnace with 78% AFUE Rating	1	ea	6.154	2,650.00	310.00	0.00	2,960.00	\$ 2,960		
SUBTOTAL									\$ 2,960	
D3030 COOLING GENERATION SYSTEMS										
D303099 2 Ton AC Condenser Unit, 13 SEER	1	ea	7.619	1,350.00	245.00	0.00	1,595.00	\$ 1,595		
SUBTOTAL									\$ 1,595	
D3040 DISTRIBUTION SYSTEMS										
D304007 Exhaust Fan	1	ea	0.533	117.00	22.50	0.00	139.50	\$ 140		
D304007 Return/Exhaust Grille 12x24	3	ea	0.444	33.00	15.15	0.00	48.15	\$ 144		
D304001 Floor Supply Diffuser	10	ea	0.250	44.50	8.55	0.00	53.05	\$ 531		
D304001 Galvanized Sheetmetal Duct	697	lbs	0.253	2.19	8.05	0.00	10.24	\$ 7,137		
SUBTOTAL									\$ 7,952	
D3060 CONTROLS AND INSTRUMENTATION										
D306001 Thermostat	1	ea	1.000	146.00	35.50	0.00	181.50	\$ 182		
SUBTOTAL									\$ 182	
D3070 SYSTEM TESTING & BALANCING										
D307002 System Testing & Balancing	1	ls		500.00			500.00	\$ 500		
D307003 Commissioning	1	ls		500.00			500.00	\$ 500		
SUBTOTAL									\$ 1,000	
TOTAL - HVAC										\$ 13,688
D40 FIRE PROTECTION										
D4010 FIRE PROTECTION										
NONE							0.00		\$ -	
SUBTOTAL									\$ -	
D4020 STANDPIPES										
NONE							0.00		\$ -	
SUBTOTAL									\$ -	
TOTAL - FIRE PROTECTION										\$ -
D50 ELECTRICAL										
D5010 SERVICE & DISTRIBUTION										
D501005 Load Center NEMA 3R (200 Amp Service)	1	ea	21.288	887.60	1,055.60	0.00	1,943.20	\$ 1,943		
SUBTOTAL									\$ 1,943	
D5020 LIGHTING & POWER										
D502002 8" Diameter Compact Fluorescent Downlight	9	ea	1.000	70.00	33.50	0.00	103.50	\$ 932		
D502002 Bathroom Light Fixture	1	ea	0.667	80.00	22.50	0.00	102.50	\$ 103		
D502002 Ceiling Fan	2	ea	1.509	125.00	51.00	0.00	176.00	\$ 352		
D502002 Exterior Light	7	ea	0.500	35.00	27.50	0.00	62.50	\$ 438		
D502002 Wall Wount Duplex Receptacle	17	ea	0.615	23.00	33.50	0.00	56.50	\$ 961		
D502002 GFI Duplex Receptacle	8	ea	1.000	56.50	54.50	0.00	111.00	\$ 888		
D502002 GFI Duplex Receptacle Weatherproof	2	ea	1.330	149.00	73.00	0.00	222.00	\$ 444		
D502002 Single Gang Switch	13	ea	0.500	19.85	27.50	0.00	47.35	\$ 616		
D502002 Dryer Outlet	1	ea	2.162	60.00	118.00	0.00	178.00	\$ 178		
D502099 Air Conditioning Circuit	1	ea	0.800	23.00	43.50	0.00	66.50	\$ 67		
D502099 Furnace Circuit	1	ea	1.330	27.00	73.00	0.00	100.00	\$ 100		
D502099 Exhaust Fans (wiring only)	1	ea	0.800	19.85	43.50	0.00	63.35	\$ 63		
D502099 Range Wiring	1	ea	2.000	91.00	1.09	0.00	92.09	\$ 92		
D502099 Water Heater Wiring	1	ea	1.600	31.50	87.50	0.00	119.00	\$ 119		
D502099 Doorbell System	1	ea	0.500	30.00	16.85	0.00	46.85	\$ 47		
D502001 Allowance for Conduit and Wiring	61	fixt	0.500	31.50	27.50	0.00	59.00	\$ 3,599		
SUBTOTAL									\$ 8,996	

PROTOTYPE HOME

Residential Single Family Home

Detailed Cost Estimate

Vented Crawspace

GFA

1,458

DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	EST'D COST	SUB TOTAL	TOTAL COST
D5030 COMMUNICATION & SECURITY SYSTEMS										
D503003 Telephone Outlet	3	ea	0.615	23.000	33.500	0.000	56.50	\$ 170		
D503007 Data/Cable Outlet	3	ea	0.615	23.000	33.500	0.000	56.50	\$ 170		
SUBTOTAL									\$ 339	
D5090 OTHER ELECTRICAL SYSTEMS										
D509099 Smoke Detector	5	ea	1.290	126.00	43.50	0.00	169.50	\$ 848		
SUBTOTAL									\$ 848	
TOTAL - ELECTRICAL										\$ 12,126
E10 EQUIPMENT										
E1090 EQUIPMENT, GENERALLY										
E109004 Washer	1	ea	2.667	400.00	94.50	0.00	494.50	\$ 495		
E109004 Dryer	1	ea	5.330	500.00	140.00	0.00	640.00	\$ 640		
E109004 Dryer Vent Kit	1	ea	0.800	37.50	24.00	0.00	61.50	\$ 62		
E109004 Refrigerator	1	ea	5.143	835.00	229.00	0.00	1,064.00	\$ 1,064		
E109004 Dishwasher	1	ea	6.735	545.00	385.00	0.00	930.00	\$ 930		
E109004 Range Hood	1	ea	4.650	106.00	244.00	0.00	350.00	\$ 350		
E109004 Gas Range	1	ea	3.600	645.00	169.00	0.00	814.00	\$ 814		
SUBTOTAL									\$ 4,354	
TOTAL - EQUIPMENT										\$ 4,354
E20 FURNISHINGS										
E2010 FIXED FURNISHINGS										
SUBTOTAL									\$ -	
E2020 MOVABLE FURNISHINGS										
SUBTOTAL									NIC	
TOTAL - FURNISHINGS										\$ -
F10 SPECIAL CONSTRUCTION										
F10 SPECIAL CONSTRUCTION										
SUBTOTAL									\$ -	
TOTAL - SPECIAL CONSTRUCTION										\$ -
F20 SELECTIVE BUILDING DEMOLITION										
F2010 BUILDING ELEMENTS DEMOLITION										
SUBTOTAL									\$ -	
F2020 HAZARDOUS COMPONENTS ABATEMENT										
Excluded									\$ -	
SUBTOTAL									\$ -	
TOTAL - SELECTIVE BUILDING DEMOLITION										\$ -
G SITE PREP/DEVELOPMENT										
G10 SITE PREP / DEMOLITION										
G103099 Silt fence	250	lf	0.010	0.41	0.22	0.00	0.63	\$ 158		
G101001/5 Clear and grub	0.5	acre	9.120	0.00	641.25	0.00	641.25	\$ 321		
SUBTOTAL									\$ 478	
G20 SITE IMPROVEMENTS										
G203003 Concrete patio/sidewalk	90	sf	0.040	1.65	1.08	0.00	2.73	\$ 246		
G201003 Asphalt Paving; 2" Base + 1" Topping	1,250	sf	0.003	1.25	0.31	0.00	1.56	\$ 1,950		
G201001 Paving Subbase; 6" crushed stone	1,250	sf	0.001	0.91	0.09	0.00	1.00	\$ 1,250		
G205004 Final Grading & Seeding	22	msf	0.044	22.00	0.99	0.00	22.99	\$ 501		
G205099 Landscaping	1	ls	0.000	500.00	500.00	0.00	1,000.00	\$ 1,000		
SUBTOTAL									\$ 4,947	
G30 CIVIL MECHANICAL UTILITIES										
Water Service										
G301001 6" DIP water supply	50	lf	0.250	14.60	7.15	0.00	21.75	\$ 1,088		
Sanitary Sewer										
G302001 6" PVC sanitary sewer	50	lf	0.690	3.68	1.58	0.00	5.26	\$ 263		
Gas Service										
G306006 Gas Service Line	50	lf	0.059	1.95	0.75	0.00	2.70	\$ 135		
SUBTOTAL									\$ 1,486	
G40 ELECTRICAL UTILITIES										
G402004 Incoming Electrical Service Feeder	50	lf	0.067	3.47	2.25	0.00	5.72	\$ 286		
SUBTOTAL									\$ 286	

PROTOTYPE HOME

Residential Single Family Home

Detailed Cost Estimate

Vented Crawlspace

GFA

1,458

DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	EST'D COST	SUB TOTAL	TOTAL COST
G90 OTHER SITE CONSTRUCTION SUBTOTAL									\$ -	
TOTAL - SITE DEVELOPMENT										\$ 7,196
PROJECT SUBTOTAL										\$ 180,119
MARK UP										
GENERAL COND. / PERMIT / INS./FEE General Conditions, O.H. & Profit SUBTOTAL	11.00%							\$ 19,813	\$ 19,813	
CONTINGENCIES/ESCALATION										
DESIGN & PRICING Design and pricing contingency SUBTOTAL	2.50%							\$ 4,503	\$ 4,503	
ESCALATION To Construction Midpoint SUBTOTAL	0.52%							\$ 1,048	\$ 1,048	
TOTAL - MARK UP /CONTINGENCIES / ESCALATION										\$ 25,364
PROJECT TOTAL										\$ 205,483

PROTOTYPE HOME

Project Title 2

Detailed Cost Estimate

Unheated Basement

GFA

2,418

DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	ESTD COST	SUB TOTAL	TOTAL COST
A10 FOUNDATIONS										
A1010 STANDARD FOUNDATIONS										
A101001 CIP Strip Footings, Reinforced (3,000 psi)	9	cy	3.910	161.66	177.28	0.00	338.94	\$ 3,050		
A101099 4x6 Curb Block	29	lf	0.089	2.88	4.02	0.00	6.90	\$ 200		
A101001 6" CMU Foundation Walls	55	sf	0.089	2.88	4.02	0.00	6.90	\$ 380		
A101001 8" CMU Foundation Walls	374	sf	0.093	3.23	4.30	0.00	7.53	\$ 2,816		
A101001 12" CMU Foundation Walls	83	sf	0.122	4.38	7.15	0.00	11.53	\$ 957		
A101099 Drain Tile	128	lf	0.063	7.55	1.45	0.00	9.00	\$ 1,152		
A101099 Waterproofing; Spray applied 2-coats	399	sf	0.016	0.42	0.73	0.00	1.15	\$ 459		
SUBTOTAL									\$ 9,014	
A1020 SPECIAL FOUNDATIONS										
None									\$ -	
SUBTOTAL									\$ -	
A1030 LOWEST FLOOR CONSTRUCTION										
A103001 4" Slab on Grade w/ 6x6 10/10 W1.4/W1.4, (3,000 psi)	19	cy	2.610	158.76	124.39		283.15	\$ 5,380		
SUBTOTAL									\$ 5,380	
										\$ 14,394
A20 BASEMENT CONSTRUCTION										
A2010 BASEMENT EXCAVATION										
A201001 Excavation	271	cy	0.020	0.00	0.54	0.91	1.45	\$ 393		
A201002 Backfill & Compaction	84	cy	0.007	0.00	0.21	0.88	1.09	\$ 92		
A201099 Remove from site	187	cy	0.056	0.00	1.36	2.19	3.55	\$ 664		
SUBTOTAL									\$ 1,148	
A2020 BASEMENT WALLS										
A202001 8" CMU Basement Walls	87	sf	0.093	3.23	4.30	0.00	7.53	\$ 655		
A202001 12" CMU Basement Walls	474	sf	0.122	4.38	7.15	0.00	11.53	\$ 5,465		
A202002 Waterproofing; Spray applied 2-coats	561	sf	0.016	0.42	0.73	0.00	1.15	\$ 645		
SUBTOTAL									\$ 6,765	
TOTAL - BASEMENT CONSTRUCTION										\$ 7,914
B10 SUPERSTRUCTURE										
B1010 UPPER FLOOR CONSTRUCTION										
Main Floor Construction										
B101001 9½" LPI Joists @ 19.2" O.C.	0.56	mlf	17.780	1,550.00	535.00	0.00	2,085.00	\$ 1,159		
B101001 Triple 11½" LVL	115	lf	0.089	29.50	2.44	1.46	33.40	\$ 3,841		
B101099 R-38 Floor Insulation	960	sf	0.006	0.95	0.18	0.00	1.13	\$ 1,085		
B101099 R-19 Rim Insulation	150	sf	0.006	0.37	0.18	0.00	0.55	\$ 83		
B101003 ¾" Tongue & Groove Oxboard Subfloor	960	sf	0.010	0.82	0.31	0.00	1.13	\$ 1,085		
Second Floor Construction										
B101001 18" Floor Trusses @ 24" O.C. (20'-0" Span)	0.26	mlf	21.622	3,175.00	650.00	0.00	3,825.00	\$ 1,010		
B101099 R-19 Rim Insulation	98	sf	0.006	0.37	0.18	0.00	0.55	\$ 54		
B101003 ¾" Tongue & Groove Oxboard Subfloor	486	sf	0.010	0.82	0.31	0.00	1.13	\$ 549		
SUBTOTAL									\$ 8,865	
B1020 ROOF CONSTRUCTION										
B102001 Engineered Roof Trusses 5:12 Pitch (20'-0" Span)	480	sf	0.055	3.39	2.99	0.00	6.38	\$ 3,064		
B102001 Engineered Roof Trusses 5:12 Pitch (30'-0" Span)	630	sf	0.057	3.45	3.08	0.00	6.53	\$ 4,114		
B102001 Scissor Trusses 8:12 Pitch (23'-0" Span)	480	sf	0.058	3.51	3.17	0.00	6.68	\$ 3,206		
B102001 Girder Trusses (7'-0" Span)	1	ea	0.702	76.50	19.25	0.00	95.75	\$ 96		
B102099 2x6 Sub Facia	310	lf	0.011	0.53	0.34	0.00	0.87	\$ 269		
B102003 ½" OSB Roof Sheathing	2,440	sf	0.012	0.33	0.36	0.00	0.69	\$ 1,684		
B102099 R-44 Blown-In Roof Insulation	974	sf	0.024	0.56	0.54	0.29	1.39	\$ 1,349		
B102099 4-Mil Poly Vapor Barrier	2,440	sf	0.002	0.030	0.070	0.000	0.10	\$ 244		
B102099 1" Air Baffles	50.0	ea	0.001	1.00	1.00	0.00	2.00	\$ 100		
SUBTOTAL									\$ 14,126	
TOTAL - SUPERSTRUCTURE										\$ 22,991
B20 EXTERIOR ENCLOSURE										
B2010 EXTERIOR WALLS										
B201002 Exterior Film Wall Wrap	2,352	sf	0.002	0.13	0.06	0.00	0.19	\$ 447		
B201001 Vinyl Siding	2,525	sf	0.065	3.57	3.29	0.00	6.86	\$ 17,322		
B201001 Face Brick	25	sf	0.174	3.61	4.85	0.00	8.46	\$ 212		
B201001 ½" Oriented Strand Board Wall Sheathing	2,352	sf	0.012	0.39	0.37	0.00	0.76	\$ 1,788		
B201001 2x4 Studs 16" oc (Garage), 8 foot height	91	lf	0.192	4.48	9.76	0.00	14.24	\$ 1,296		
B201001 2x6 Studs 16" oc, 8 foot height	558	lf	0.208	6.88	10.64	0.00	17.52	\$ 9,776		
B201001 2x10 Rim Joist	128	lf	0.015	1.11	0.47	0.00	1.58	\$ 202		
B201001 2x10 Header	258	lf	0.015	1.11	0.47	0.00	1.58	\$ 408		
B201001 2x14 Header	36	lf	0.018	1.70	0.54	0.00	2.24	\$ 81		
B201002 R-19 Batt Insulation	2,106	sf	0.006	0.37	0.18	0.00	0.55	\$ 1,158		
B201003 ½" Gypsum Wall Board	1,639	sf	0.022	0.54	1.08	0.00	1.62	\$ 2,655		

PROTOTYPE HOME

Project Title 2

Detailed Cost Estimate

Unheated Basement

GFA

2,418

DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	EST'D COST	SUB TOTAL	TOTAL COST
B201002 Interior Vapor Barrier (optional)	1,639	sf	0.002	0.030	0.070	0.000	0.10	\$ 164		
B201008 Prefinished Metal Facia	310	lf	0.040	1.29	1.21	0.00	2.50	\$ 775		
B201008 Prefinished Vented Metal Soffit Panel	310	lf	0.160	6.05	4.82	0.00	10.87	\$ 3,364		
SUBTOTAL									\$ 39,647	
B2020 WINDOWS/ GLAZING (builders grade)										
B202001 Type A; 4'-0"x4'-0" Vinyl Glider	1	ea	0.889	483.52	24.00	0.00	507.52	\$ 508		
B202001 Type B; 5'-0"x4'-0" Vinyl Glider	8	ea	0.889	604.40	27.60	0.00	632.00	\$ 5,056		
B202001 Type C; 6'-0"x5'-0" Vinyl Glider	3	ea	1.000	906.60	30.00	0.00	936.60	\$ 2,810		
B202001 Type D; 6'-0"x6'-8" Vinyl Patio Glider	2	ea	5.330	1,208.80	48.00	0.00	1,256.80	\$ 2,514		
B202001 Type E; 2'-0"x3'-6" Crank Out Casement	2	ea	0.842	283.00	25.50	0.00	308.50	\$ 617		
SUBTOTAL									\$ 11,504	
B2030 EXTERIOR DOORS										
B203002 3'-0"x6'-8" Insulated Metal 6-Panel Door w/ two 8" x 6'-0" sidelites	2	ea	6.274	529.33	303.94	0.00	833.27	\$ 1,667		
B203004 8'-0"x7'-0" Overhead Sectional Garage Door	1	ea	8.237	1,100.96	390.23	0.00	1,491.19	\$ 1,491		
B203004 16'-0"x7'-0" Overhead Sectional Raised Panel Garage Door	1	ea	11.401	1,895.62	537.56	0.00	2,433.18	\$ 2,433		
SUBTOTAL									\$ 5,591	
TOTAL - EXTERIOR CLOSURE										\$ 56,741
B30 ROOFING										
B3010 ROOF COVERINGS										
B301001 220# Asphalt Architectural Shingles	23.0	sq	1.143	105.930	37.719	0.00	143.65	\$ 3,304		
B301003 15# Asphalt Felt	24.4	sq	0.200	4.940	6.600	0.00	11.54	\$ 282		
B301003 Ice & Water Shield	7.2	sq	0.364	102.590	12.012	0.00	114.60	\$ 819		
B301001 Ridge Shingles	75	lf	0.019	1.90	0.49	0.00	2.39	\$ 179		
B301004 Prefinished Roof Square Vent (1 sf per 200 sf area)	13	ea	0.111	12.00	3.35	0.00	15.35	\$ 200		
B301004 Linear Vent	80	lf	0.052	2.73	1.76	0.00	4.49	\$ 359		
B301004 Prefinished Drip Edge	140	lf	0.020	0.38	0.60	0.00	0.98	\$ 137		
B301004 Wall to Roof Flashings	48	lf	0.055	1.07	1.39	0.00	2.46	\$ 118		
B301004 Valley Flashing	20	lf	0.080	12.00	2.02	0.00	14.02	\$ 280		
B301005 Prefinished Aluminum Gutter	136	lf	0.067	2.58	2.27	0.00	4.85	\$ 660		
B301005 Prefinished Aluminum Downspout	60	lf	0.042	1.03	1.44	0.00	2.47	\$ 148		
SUBTOTAL									\$ 6,486	
B3020 ROOF OPENINGS										
None								\$ -		
SUBTOTAL									\$ -	
TOTAL - ROOFING										\$ 6,486
C10 INTERIOR CONSTRUCTION										
C1010 PARTITIONS										
C101001 2x4 Studs 16" oc, 8 foot height	97	lf	0.192	4.48	9.76	0.000	14.24	\$ 1,378		
C101001 2x6 Studs 16" oc, 8 foot height	47	lf	0.208	6.88	10.64	0.000	17.52	\$ 815		
C101001 5/8" Gypsum Wall board - fire taped	520	sf	0.017	0.32	0.50	0.00	0.82	\$ 426		
C101001 1/2" Gypsum Wall board - finished	1,729	sf	0.022	0.54	1.08	0.00	1.62	\$ 2,801		
SUBTOTAL									\$ 5,420	
C1020 INTERIOR DOORS (incl. frames & hdwe.)										
C102001 Interior Single Doors; Solid Core Wood, 2'-4"	4	ea	7.854	274.28	362.29	0.00	636.57	\$ 2,546		
C102001 Interior Single Doors; Solid Core Wood, 2'-6"	2	ea	7.854	289.52	362.29	0.00	651.81	\$ 1,304		
C102001 Interior Single Doors; Solid Core Wood, 2'-8"	2	ea	7.854	304.76	362.29	0.00	667.05	\$ 1,334		
C102004 Bi-Fold Door, 5'-0"	1	ea	7.568	382.50	350.68	0.00	733.18	\$ 733		
SUBTOTAL									\$ 5,917	
C1030 SPECIALTIES / MILLWORK										
C103009 Particle Board Base Cabinets; Oak Veneer	18	lf	0.320	96.60	16.20	0.00	112.80	\$ 2,030		
C103009 Particle Board Upper Cabinets; Oak Veneer	22	lf	0.213	64.40	10.80	0.00	75.20	\$ 1,654		
C103098 1'-6"x5'-0" High Pantry	1	ea	0.533	161.00	27.00	0.00	188.00	\$ 188		
C103008 P-Lam Countertops w/ Backsplash	85	sf	0.267	32.00	13.45	0.00	45.45	\$ 3,863		
C103006 Malamine Closet Shelf w/ rod	28	sf	0.076	4.24	2.30	0.00	6.54	\$ 183		
C103099 Railing, Ballusters, Newel - Oak	12	lf	0.200	37.00	6.05	0.00	43.05	\$ 517		
C103099 Oak Skirt Boards	28	lf	0.083	2.75	2.51	0.00	5.26	\$ 147		
C103099 Oak Handrail	26	lf	0.133	5.50	3.33	0.00	8.83	\$ 229		
C103099 5/4" Oak Window Surround Jamb	16	sets	1.330	62.50	40.00	0.00	102.50	\$ 1,640		
C103099 Ranch Casing	764	lf	0.037	1.62	1.12	0.00	2.74	\$ 2,093		
Toilet Accessories										
C103002 Toilet Roll Holder	1	ea	0.267	18.65	13.45	0.00	32.10	\$ 32		
C103002 Towel Holder	1	ea	0.278	35.00	14.05	0.00	49.05	\$ 49		
C103002 48" Vanity 2'-0" Wide x 2'-6" High	1	ea	1.500	360.00	63.13	0.00	423.13	\$ 423		
C103002 P-Lam Countertop w/ backsplash	1	ea	1.500	360.00	63.13	0.00	423.13	\$ 423		
C103098 2'-0" Wide x 6'-0" High Linen Closet Faceframe	1	ea	0.267	32.000	13.450	0.000	45.45	\$ 45		
C103002 Mirrors w/out shelves	12	sf	0.111	17.92	5.63	0.00	23.55	\$ 283		
SUBTOTAL									\$ 13,801	

PROTOTYPE HOME

Project Title 2

Detailed Cost Estimate

Unheated Basement

GFA

2,418

DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	EST'D COST	SUB TOTAL	TOTAL COST
TOTAL - INTERIOR CONSTRUCTION										\$ 25,138
C20 STAIRCASES										
C2010 STAIR CONSTRUCTION										
C201002 CIP Concrete Stoop (8'-0" Wide; 2-risers)	4	cy	4.888	202.075	221.600	0.000	423.68	\$ 1,695		
C201001 Wood Stairs, for carpet	28	ea	0.410	55.00	12.35	0.00	67.35	\$ 1,886		
SUBTOTAL									\$ 3,581	
C2020 STAIR FINISHES										
See Finishes									\$ -	
SUBTOTAL									\$ -	
TOTAL - STAIRCASES										\$ 3,581
C30 INTERIOR FINISHES										
C3010 WALL FINISHES										
C301005 PT; painted gyp	3,164	sf	0.010	0.11	0.27	0.00	0.38	\$ 1,202		
SUBTOTAL									\$ 1,202	
C3020 FLOOR FINISHES										
C302005 CPT-1: Carpet & Pad	76	sy	0.162	27.99	4.59	0.00	32.58	\$ 2,476		
C302004 RF-1: Sheet Vinyl	345	sf	0.032	3.75	0.91	0.00	4.66	\$ 1,608		
C302099 Wood Base; 3-1/2" Oak	339	lf	0.033	3.38	1.00	0.00	4.38	\$ 1,485		
C302099 Base Shoe (Oak quarter-round)	339	ea	0.030	0.45	0.91	0.00	1.36	\$ 461		
SUBTOTAL									\$ 6,030	
C3030 CEILING FINISHES										
C303003 ½" Gypsum Board	842	sf	0.330	0.57	1.54	0.00	2.11	\$ 1,777		
C303003 ¾" Vaulted Gypsum Board	480	sf	0.396	0.57	1.54	0.00	2.11	\$ 1,013		
C303099 Spray Applied Texture, add for above	1,322	sf	0.010	0.05	0.27	0.00	0.32	\$ 423		
SUBTOTAL									\$ 3,212	
TOTAL - INTERIOR FINISHES										\$ 10,444
D10 CONVEYING SYSTEMS										
D1010 ELEVATOR										
SUBTOTAL									\$ -	
D1020 ESCALATORS & MOVING WALKWAYS										
SUBTOTAL									\$ -	
D1030 OTHER CONVEYING SYSTEMS										
SUBTOTAL									\$ -	
TOTAL - CONVEYING SYSTEMS										\$ -
D20 PLUMBING										
D2010 PLUMBING FIXTURES										
D201001 Water Closet	1	ea	3.019	265.00	157.00	0.00	422.00	\$ 422		
D201003 Lavatory Sink	1	ea	2.500	325.00	130.00	0.00	455.00	\$ 455		
D201005 5' Tub and Shower Surround - 1 Piece	1	ea	4.000	780.00	127.00	0.00	907.00	\$ 907		
D201004 2 Compartment Sink Unit	1	ea	3.330	400.00	106.00	0.00	506.00	\$ 506		
D201099 Laundry Tub	1	ea	2.462	145.00	78.50	0.00	223.50	\$ 224		
D201004 Kitchen Faucet	1	ea	1.133	77.65	40.30	0.00	117.95	\$ 118		
D201003 Lavatory Faucet	1	ea	1.201	62.50	42.50	0.00	105.00	\$ 105		
D201005 Bath/Shower Faucet	1	ea	1.000	86.50	35.50	0.00	122.00	\$ 122		
D201099 Laundry Faucet	1	ea	0.800	171.00	28.50	0.00	199.50	\$ 200		
D201099 Hose Bib	2	ea	0.333	10.60	11.80	0.00	22.40	\$ 45		
SUBTOTAL									\$ 3,103	
D2020 DOMESTIC WATER DISTRIBUTION										
SOFT COLD WATER-										
D202001 ½" copper	150	lf	0.099	3.97	3.50	0.00	7.47	\$ 1,121		
D202001 ¾" copper	40	lf	0.105	5.95	3.73	0.00	9.68	\$ 387		
D202001 1" copper	20	lf	0.118	9.00	4.16	0.00	13.16	\$ 263		
HOT WATER-										
D202001 ½" copper	100	lf	0.099	3.970	3.500	0.000	7.47	\$ 747		
D202001 ¾" copper	35	lf	0.105	5.950	3.730	0.000	9.68	\$ 339		
D202001 1" copper	20	lf	0.118	9.000	4.160	0.000	13.16	\$ 263		
D202001 ½" thick rubber tubing, flexible, closed cell foam insulation, on ½" copper pipe	100	lf	0.089	1.126	4.299	0.000	5.43	\$ 543		
D202001 ½" thick rubber tubing, flexible, closed cell foam insulation, on ¾" copper pipe	30	lf	0.090	1.265	4.347	0.000	5.61	\$ 168		
D202001 ¾" thick rubber tubing, flexible, closed cell foam insulation, on 1" copper pipe	20	lf	0.090	1.452	4.347	0.000	5.80	\$ 116		
D202005 Hot Water Heater, Gas Fired; 30gal	1	ea	4.000	985.00	231.00	0.00	1,216.00	\$ 1,216		
SUBTOTAL									\$ 5,163	

PROTOTYPE HOME

Project Title 2

Detailed Cost Estimate

Unheated Basement

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DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	EST'D COST	SUB TOTAL	TOTAL COST
D2030 SANITARY WASTE										
D203001 2" Sanitary Waste Piping	120	ea	0.250	11.45	7.95	0.00	19.40	\$ 2,328		
D203001 4" Sanitary Waste Piping	25	ea	0.333	14.20	10.60	0.00	24.80	\$ 620		
D203002 4" Vent Piping	20	ea	0.333	14.20	10.60	0.00	24.80	\$ 496		
D203099 Sump Pump and Basket	1	ea	2.667	119.00	94.50	0.00	213.50	\$ 214		
SUBTOTAL									\$ 3,658	
D2040 RAIN WATER DRAINAGE										
See Gutters/Downspouts								\$ -		
SUBTOTAL									\$ -	
D2090 OTHER										
D209001 Gas Distribution Piping	50	lf	0.059	1.95	0.75	0.00	2.70	\$ 135		
SUBTOTAL									\$ 135	
TOTAL - PLUMBING										\$ 12,058
D30 HVAC										
D3020 HEAT GENERATION SYSTEMS										
D302003 Natural Gas Furnace with 78% AFUE Rating	1	ea	6.154	2,650.00	310.00	0.00	2,960.00	\$ 2,960		
SUBTOTAL									\$ 2,960	
D3030 COOLING GENERATION SYSTEMS										
D303099 2 Ton AC Condenser Unit, 13 SEER	1	ea	7.619	1,350.00	245.00	0.00	1,595.00	\$ 1,595		
SUBTOTAL									\$ 1,595	
D3040 DISTRIBUTION SYSTEMS										
D304007 Exhaust Fan	1	ea	0.533	117.00	22.50	0.00	139.50	\$ 140		
D304007 Return/Exhaust Grille 12x24	5	ea	0.444	33.00	15.15	0.00	48.15	\$ 241		
D304001 Floor Supply Diffuser	10	ea	0.250	44.50	8.55	0.00	53.05	\$ 531		
D304001 Galvanized Sheetmetal Duct	715	lbs	0.253	2.19	8.05	0.00	10.24	\$ 7,322		
SUBTOTAL									\$ 8,232	
D3060 CONTROLS AND INSTRUMENTATION										
D306001 Thermostat	1	ea	1.000	146.00	35.50	0.00	181.50	\$ 182		
SUBTOTAL									\$ 182	
D3070 SYSTEM TESTING & BALANCING										
D307002 System Testing & Balancing	1	ls		500.00			500.00	\$ 500		
D307003 Commissioning	1	ls		500.00			500.00	\$ 500		
SUBTOTAL									\$ 1,000	
TOTAL - HVAC										\$ 13,969
D40 FIRE PROTECTION										
D4010 FIRE PROTECTION										
NONE							0.00		\$ -	
SUBTOTAL									\$ -	
D4020 STANDPIPES										
NONE							0.00		\$ -	
SUBTOTAL									\$ -	
TOTAL - FIRE PROTECTION										\$ -
D50 ELECTRICAL										
D5010 SERVICE & DISTRIBUTION										
D501005 Load Center NEMA 3R (200 Amp Service)	1	ea	21.288	887.60	1,055.60	0.00	1,943.20	\$ 1,943		
SUBTOTAL									\$ 1,943	
D5020 LIGHTING & POWER										
D502002 8" Diameter Compact Fluorescent Downlight	10	ea	1.000	70.00	33.50	0.00	103.50	\$ 1,035		
D502002 Bathroom Light Fixture	1	ea	0.667	80.00	22.50	0.00	102.50	\$ 103		
D502002 Ceiling Fan	2	ea	1.509	125.00	51.00	0.00	176.00	\$ 352		
D502002 Exterior Light	7	ea	0.500	35.00	27.50	0.00	62.50	\$ 438		
D502002 Wall Wount Duplex Receptacle	17	ea	0.615	23.00	33.50	0.00	56.50	\$ 961		
D502002 GFI Duplex Receptacle	8	ea	1.000	56.50	54.50	0.00	111.00	\$ 888		
D502002 GFI Duplex Receptacle Weatherproof	2	ea	1.330	149.00	73.00	0.00	222.00	\$ 444		
D502002 Single Gang Switch	13	ea	0.500	19.85	27.50	0.00	47.35	\$ 616		
D502002 Dryer Outlet	1	ea	2.162	60.00	118.00	0.00	178.00	\$ 178		
D502099 Air Conditioning Circuit	1	ea	0.800	23.00	43.50	0.00	66.50	\$ 67		
D502099 Furnace Circuit	1	ea	1.330	27.00	73.00	0.00	100.00	\$ 100		
D502099 Exhaust Fans (wiring only)	1	ea	0.800	19.85	43.50	0.00	63.35	\$ 63		
D502099 Range Wiring	1	ea	2.000	91.00	1.09	0.00	92.09	\$ 92		
D502099 Water Heater Wiring	1	ea	1.600	31.50	87.50	0.00	119.00	\$ 119		
D502099 Doorbell System	1	ea	0.500	30.00	16.85	0.00	46.85	\$ 47		
D502001 Allowance for Conduit and Wiring	62	fixt	0.500	31.50	27.50	0.00	59.00	\$ 3,658		
SUBTOTAL									\$ 9,159	

PROTOTYPE HOME

Project Title 2

Detailed Cost Estimate

Unheated Basement

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DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	EST'D COST	SUB TOTAL	TOTAL COST
D5030 COMMUNICATION & SECURITY SYSTEMS										
D503003 Telephone Outlet	3	ea	0.615	23.000	33.500	0.000	56.50	\$ 170		
D503007 Data/Cable Outlet	3	ea	0.615	23.000	33.500	0.000	56.50	\$ 170		
SUBTOTAL									\$ 339	
D5090 OTHER ELECTRICAL SYSTEMS										
D509099 Smoke Detector	5	ea	1.290	126.00	43.50	0.00	169.50	\$ 848		
SUBTOTAL									\$ 848	
TOTAL - ELECTRICAL										\$ 12,289
E10 EQUIPMENT										
E1090 EQUIPMENT, GENERALLY										
E109004 Washer	1	ea	2.667	400.00	94.50	0.00	494.50	\$ 495		
E109004 Dryer	1	ea	5.330	500.00	140.00	0.00	640.00	\$ 640		
E109004 Dryer Vent Kit	1	ea	0.800	37.50	24.00	0.00	61.50	\$ 62		
E109004 Refrigerator	1	ea	5.143	835.00	229.00	0.00	1,064.00	\$ 1,064		
E109004 Dishwasher	1	ea	6.735	545.00	385.00	0.00	930.00	\$ 930		
E109004 Range Hood	1	ea	4.650	106.00	244.00	0.00	350.00	\$ 350		
E109004 Gas Range	1	ea	3.600	645.00	169.00	0.00	814.00	\$ 814		
SUBTOTAL									\$ 4,354	
TOTAL - EQUIPMENT										\$ 4,354
E20 FURNISHINGS										
E2010 FIXED FURNISHINGS										
SUBTOTAL									\$ -	
E2020 MOVABLE FURNISHINGS										
SUBTOTAL									NIC	
TOTAL - FURNISHINGS										\$ -
F10 SPECIAL CONSTRUCTION										
F10 SPECIAL CONSTRUCTION										
SUBTOTAL									\$ -	
TOTAL - SPECIAL CONSTRUCTION										\$ -
F20 SELECTIVE BUILDING DEMOLITION										
F2010 BUILDING ELEMENTS DEMOLITION										
SUBTOTAL									\$ -	
F2020 HAZARDOUS COMPONENTS ABATEMENT										
Excluded									\$ -	
SUBTOTAL									\$ -	
TOTAL - SELECTIVE BUILDING DEMOLITION										\$ -
G SITE PREP/DEVELOPMENT										
G10 SITE PREP / DEMOLITION										
G103099 Silt fence	250	lf	0.010	0.41	0.22	0.00	0.63	\$ 158		
G101001/5 Clear and grub	0.5	acre	9.120	0.00	641.25	0.00	641.25	\$ 321		
SUBTOTAL									\$ 478	
G20 SITE IMPROVEMENTS										
G203003 Concrete patio/sidewalk	90	sf	0.040	1.65	1.08	0.00	2.73	\$ 246		
G201003 Asphalt Paving; 2" Base + 1" Topping	1,250	sf	0.003	1.25	0.31	0.00	1.56	\$ 1,950		
G201001 Paving Subbase; 6" crushed stone	1,250	sf	0.001	0.91	0.09	0.00	1.00	\$ 1,250		
G205004 Final Grading & Seeding	22	msf	0.044	22.00	0.99	0.00	22.99	\$ 501		
G205099 Landscaping	1	ls	0.000	500.00	500.00	0.00	1,000.00	\$ 1,000		
SUBTOTAL									\$ 4,947	
G30 CIVIL MECHANICAL UTILITIES										
Water Service										
G301001 6" DIP water supply	50	lf	0.250	14.60	7.15	0.00	21.75	\$ 1,088		
Sanitary Sewer										
G302001 6" PVC sanitary sewer	50	lf	0.690	3.68	1.58	0.00	5.26	\$ 263		
Gas Service										
G306006 Gas Service Line	50	lf	0.059	1.95	0.75	0.00	2.70	\$ 135		
SUBTOTAL									\$ 1,486	
G40 ELECTRICAL UTILITIES										
G402004 Incoming Electrical Service Feeder	50	lf	0.067	3.47	2.25	0.00	5.72	\$ 286		
SUBTOTAL									\$ 286	

PROTOTYPE HOME

Project Title 2

Detailed Cost Estimate

Unheated Basement

GFA

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DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	EST'D COST	SUB TOTAL	TOTAL COST
G90 OTHER SITE CONSTRUCTION SUBTOTAL									\$ -	
TOTAL - SITE DEVELOPMENT										\$ 7,196
PROJECT SUBTOTAL										\$ 197,555
MARK UP										
GENERAL COND. / PERMIT / INS./FEE General Conditions, O.H. & Profit SUBTOTAL	11.00%							\$ 21,731	\$ 21,731	
CONTINGENCIES/ESCALATION										
DESIGN & PRICING Design and pricing contingency SUBTOTAL	2.50%							\$ 4,939	\$ 4,939	
ESCALATION To Construction Midpoint SUBTOTAL	0.52%							\$ 1,149	\$ 1,149	
TOTAL - MARK UP /CONTINGENCIES / ESCALATION										\$ 27,819
PROJECT TOTAL										\$ 225,374

PROTOTYPE HOME

Project Title 2

Detailed Cost Estimate

Heated Basement

GFA

2,418

DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	EST'D COST	SUB TOTAL	TOTAL COST
A10 FOUNDATIONS										
A1010 STANDARD FOUNDATIONS										
A101001 CIP Strip Footings, Reinforced (3,000 psi)	9	cy	3.910	161.66	177.28	0.00	338.94	\$ 3,050		
A101099 4x6 Curb Block	29	lf	0.089	2.88	4.02	0.00	6.90	\$ 200		
A101001 6" CMU Foundation Walls	55	sf	0.089	2.88	4.02	0.00	6.90	\$ 380		
A101001 8" CMU Foundation Walls	374	sf	0.093	3.23	4.30	0.00	7.53	\$ 2,816		
A101001 12" CMU Foundation Walls	83	sf	0.122	4.38	7.15	0.00	11.53	\$ 957		
A101099 Drain Tile	128	lf	0.063	7.55	1.45	0.00	9.00	\$ 1,152		
A101099 Waterproofing; Spray applied 2-coats	399	sf	0.016	0.42	0.73	0.00	1.15	\$ 459		
SUBTOTAL									\$ 9,014	
A1020 SPECIAL FOUNDATIONS										
None									\$ -	
SUBTOTAL									\$ -	
A1030 LOWEST FLOOR CONSTRUCTION										
A103001 4" Slab on Grade w/ 6x6 10/10 W1.4/W1.4, (3,000 psi)	19	cy	2.610	158.76	124.39		283.15	\$ 5,380		
SUBTOTAL									\$ 5,380	
										\$ 14,394
A20 BASEMENT CONSTRUCTION										
A2010 BASEMENT EXCAVATION										
A201001 Excavation	271	cy	0.020	0.00	0.54	0.91	1.45	\$ 393		
A201002 Backfill & Compaction	84	cy	0.007	0.00	0.21	0.88	1.09	\$ 92		
A201099 Remove from site	187	cy	0.056	0.00	1.36	2.19	3.55	\$ 664		
SUBTOTAL									\$ 1,148	
A2020 BASEMENT WALLS										
A202001 8" CMU Basement Walls	87	sf	0.093	3.23	4.30	0.00	7.53	\$ 655		
A202001 12" CMU Basement Walls	474	sf	0.122	4.38	7.15	0.00	11.53	\$ 5,465		
A202002 Waterproofing; Spray applied 2-coats	561	sf	0.016	0.42	0.73	0.00	1.15	\$ 645		
A202003 R-10 Sprayed Insulation	645	sf	0.004	0.41	0.09	0.10	0.60	\$ 387		
A202002 4-Mil Poly Vapor Barrier	645	sf	0.002	0.03	0.07	0.00	0.10	\$ 65		
A202004 2x4 Studs 16" oc, 8 foot height	70	lf	0.192	4.48	9.76	0.00	14.24	\$ 997		
A202003 R-11 Batt Insulation	560	sf	0.006	0.28	0.18	0.00	0.46	\$ 258		
A202004 1/2" Oriented Strand Board Wall Sheathing	645	sf	0.012	0.39	0.37	0.00	0.76	\$ 490		
SUBTOTAL									\$ 8,962	
TOTAL - BASEMENT CONSTRUCTION										\$ 10,110
B10 SUPERSTRUCTURE										
B1010 UPPER FLOOR CONSTRUCTION										
Main Floor Construction										
B101001 9 1/2" LPI Joists @ 19.2" O.C.	0.56	mlf	17.780	1,550.00	535.00	0.00	2,085.00	\$ 1,159		
B101001 Triple 1 1/4" LVL	115	lf	0.089	29.50	2.44	1.46	33.40	\$ 3,841		
B101099 R-19 Rim Insulation	150	sf	0.006	0.37	0.18	0.00	0.55	\$ 83		
B101003 3/4" Tongue & Groove Oxboard Subfloor	960	sf	0.010	0.82	0.31	0.00	1.13	\$ 1,085		
Second Floor Construction										
B101001 18" Floor Trusses @ 24" O.C. (20'-0" Span)	0.26	mlf	21.622	3,175.00	650.00	0.00	3,825.00	\$ 1,010		
B101099 R-19 Rim Insulation	98	sf	0.006	0.37	0.18	0.00	0.55	\$ 54		
B101003 3/4" Tongue & Groove Oxboard Subfloor	486	sf	0.010	0.82	0.31	0.00	1.13	\$ 549		
SUBTOTAL									\$ 7,780	
B1020 ROOF CONSTRUCTION										
B102001 Engineered Roof Trusses 5:12 Pitch (20'-0" Span)	480	sf	0.055	3.39	2.99	0.00	6.38	\$ 3,064		
B102001 Engineered Roof Trusses 5:12 Pitch (30'-0" Span)	630	sf	0.057	3.45	3.08	0.00	6.53	\$ 4,114		
B102001 Scissor Trusses 8:12 Pitch (23'-0" Span)	480	sf	0.058	3.51	3.17	0.00	6.68	\$ 3,206		
B102001 Girder Trusses (7'-0" Span)	1	ea	0.702	76.50	19.25	0.00	95.75	\$ 96		
B102099 2x6 Sub Facia	310	lf	0.011	0.53	0.34	0.00	0.87	\$ 270		
B102003 1/2" OSB Roof Sheathing	2,440	sf	0.012	0.33	0.36	0.00	0.69	\$ 1,684		
B102099 R-44 Blown-In Roof Insulation	974	sf	0.024	0.56	0.54	0.29	1.39	\$ 1,349		
B102099 4-Mil Poly Vapor Barrier	2,440	sf	0.002	0.030	0.070	0.000	0.10	\$ 244		
B102099 1" Air Baffles	50.0	ea	0.001	1.00	1.00	0.00	2.00	\$ 100		
SUBTOTAL									\$ 14,126	
TOTAL - SUPERSTRUCTURE										\$ 21,906
B20 EXTERIOR ENCLOSURE										
B2010 EXTERIOR WALLS										
B201002 Exterior Film Wall Wrap	2,352	sf	0.002	0.13	0.06	0.00	0.19	\$ 447		
B201001 Vinyl Siding	2,525	sf	0.065	3.57	3.29	0.00	6.86	\$ 17,322		
B201001 Face Brick	25	sf	0.174	3.61	4.85	0.00	8.46	\$ 212		
B201001 1/2" Oriented Strand Board Wall Sheathing	2,352	sf	0.012	0.39	0.37	0.00	0.76	\$ 1,788		
B201001 2x4 Studs 16" oc (Garage), 8 foot height	91	lf	0.192	4.48	9.76	0.00	14.24	\$ 1,296		
B201001 2x6 Studs 16" oc, 8 foot height	558	lf	0.208	6.88	10.64	0.00	17.52	\$ 9,776		
B201001 2x10 Rim Joist	128	lf	0.015	1.11	0.47	0.00	1.58	\$ 202		

PROTOTYPE HOME

Project Title 2

Detailed Cost Estimate

Heated Basement

GFA

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DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	EST'D COST	SUB TOTAL	TOTAL COST
B201001 2x10 Header	258	lf	0.015	1.11	0.47	0.00	1.58	\$ 408		
B201001 2x14 Header	36	lf	0.018	1.70	0.54	0.00	2.24	\$ 81		
B201002 R-19 Batt Insulation	2,106	sf	0.006	0.37	0.18	0.00	0.55	\$ 1,158		
B201003 ½" Gypsum Wall Board	1,639	sf	0.022	0.54	1.08	0.00	1.62	\$ 2,655		
B201002 Interior Vapor Barrier (optional)	1,639	sf	0.002	0.030	0.070	0.000	0.10	\$ 164		
B201008 Prefinished Metal Facia	310	lf	0.040	1.29	1.21	0.00	2.50	\$ 775		
B201008 Prefinished Vented Metal Soffit Panel	310	lf	0.160	6.05	4.82	0.00	10.87	\$ 3,364		
SUBTOTAL									\$	39,647
B2020 WINDOWS/ GLAZING (builders grade)										
B202001 Type A; 4'-0"x4'-0" Vinyl Glider	1	ea	0.889	483.52	24.00	0.00	507.52	\$ 508		
B202001 Type B; 5'-0"x4'-0" Vinyl Glider	8	ea	0.889	604.40	27.60	0.00	632.00	\$ 5,056		
B202001 Type C; 6'-0"x5'-0" Vinyl Glider	3	ea	1.000	906.60	30.00	0.00	936.60	\$ 2,810		
B202001 Type D; 6'-0"x6'-8" Vinyl Patio Glider	2	ea	5.330	1,208.80	48.00	0.00	1,256.80	\$ 2,514		
B202001 Type E; 2'-0"x3'-6" Crank Out Casement	2	ea	0.842	283.00	25.50	0.00	308.50	\$ 617		
SUBTOTAL									\$	11,504
B2030 EXTERIOR DOORS										
B203002 3'-0"x6'-8" Insulated Metal 6-Panel Door w/ two 8" x 6'-0" sidelites	2	ea	6.274	529.33	303.94	0.00	833.27	\$ 1,667		
B203004 8'-0"x7'-0" Overhead Sectional Garage Door	1	ea	8.237	1,100.96	390.23	0.00	1,491.19	\$ 1,491		
B203004 16'-0"x7'-0" Overhead Sectional Raised Panel Garage Door	1	ea	11.401	1,895.62	537.56	0.00	2,433.18	\$ 2,433		
SUBTOTAL									\$	5,591
TOTAL - EXTERIOR CLOSURE										\$ 56,741
B30 ROOFING										
B3010 ROOF COVERINGS										
B301001 220# Asphalt Architectural Shingles	23.0	sq	1.143	105.930	37.719	0.00	143.65	\$ 3,304		
B301003 15# Asphalt Felt	24.4	sq	0.200	4.940	6.600	0.00	11.54	\$ 282		
B301003 Ice & Water Shield	7.2	sq	0.364	102.590	12.012	0.00	114.60	\$ 819		
B301001 Ridge Shingles	75	lf	0.019	1.90	0.49	0.00	2.39	\$ 179		
B301004 Prefinished Roof Square Vent (1 sf per 200 sf area)	13	ea	0.111	12.00	3.35	0.00	15.35	\$ 200		
B301004 Linear Vent	80	lf	0.052	2.73	1.76	0.00	4.49	\$ 359		
B301004 Prefinished Drip Edge	140	lf	0.020	0.38	0.60	0.00	0.98	\$ 137		
B301004 Wall to Roof Flashings	48	lf	0.055	1.07	1.39	0.00	2.46	\$ 118		
B301004 Valley Flashing	20	lf	0.080	12.00	2.02	0.00	14.02	\$ 280		
B301005 Prefinished Aluminum Gutter	136	lf	0.067	2.58	2.27	0.00	4.85	\$ 660		
B301005 Prefinished Aluminum Downspout	60	lf	0.042	1.03	1.44	0.00	2.47	\$ 148		
SUBTOTAL									\$	6,486
B3020 ROOF OPENINGS										
None								\$ -		
SUBTOTAL									\$	-
TOTAL - ROOFING										\$ 6,486
C10 INTERIOR CONSTRUCTION										
C1010 PARTITIONS										
C101001 2x4 Studs 16" oc, 8 foot height	97	lf	0.192	4.48	9.76	0.000	14.24	\$ 1,378		
C101001 2x6 Studs 16" oc, 8 foot height	47	lf	0.208	6.88	10.64	0.000	17.52	\$ 815		
C101001 5/8" Gypsum Wall board - fire taped	520	sf	0.017	0.32	0.50	0.00	0.82	\$ 426		
C101001 1/2" Gypsum Wall board - finished	1,729	sf	0.022	0.54	1.08	0.00	1.62	\$ 2,801		
SUBTOTAL									\$	5,420
C1020 INTERIOR DOORS (incl. frames & hdwe.)										
C102001 Interior Single Doors; Solid Core Wood, 2'-4"	4	ea	7.854	274.28	362.29	0.00	636.57	\$ 2,546		
C102001 Interior Single Doors; Solid Core Wood, 2'-6"	2	ea	7.854	289.52	362.29	0.00	651.81	\$ 1,304		
C102001 Interior Single Doors; Solid Core Wood, 2'-8"	2	ea	7.854	304.76	362.29	0.00	667.05	\$ 1,334		
C102004 Bi-Fold Door, 5'-0"	1	ea	7.568	382.50	350.68	0.00	733.18	\$ 733		
SUBTOTAL									\$	5,917
C1030 SPECIALTIES / MILLWORK										
C103009 Particle Board Base Cabinets; Oak Veneer	18	lf	0.320	96.60	16.20	0.00	112.80	\$ 2,030		
C103009 Particle Board Upper Cabinets; Oak Veneer	22	lf	0.213	64.40	10.80	0.00	75.20	\$ 1,654		
C103098 1'-6"x5'-0" High Pantry	1	ea	0.533	161.00	27.00	0.00	188.00	\$ 188		
C103008 P-Lam Countertops w/ Backsplash	85	sf	0.267	32.00	13.45	0.00	45.45	\$ 3,863		
C103006 Malamine Closet Shelf w/ rod	28	sf	0.076	4.24	2.30	0.00	6.54	\$ 183		
C103099 Railing, Ballusters, Newel - Oak	12	lf	0.200	37.00	6.05	0.00	43.05	\$ 517		
C103099 Oak Skirt Boards	28	lf	0.083	2.75	2.51	0.00	5.26	\$ 147		
C103099 Oak Handrail	26	lf	0.133	5.50	3.33	0.00	8.83	\$ 229		
C103099 5/4" Oak Window Surround Jamb	16	sets	1.330	62.50	40.00	0.00	102.50	\$ 1,640		
C103099 Ranch Casing	764	lf	0.037	1.62	1.12	0.00	2.74	\$ 2,093		
Toilet Accessories										
C103002 Toilet Roll Holder	1	ea	0.267	18.65	13.45	0.00	32.10	\$ 32		
C103002 Towel Holder	1	ea	0.278	35.00	14.05	0.00	49.05	\$ 49		
C103002 48" Vanity 2'-0" Wide x 2'-6" High	1	ea	1.500	360.00	63.13	0.00	423.13	\$ 423		
C103002 P-Lam Countertop w/ backsplash	1	ea	1.500	360.00	63.13	0.00	423.13	\$ 423		

PROTOTYPE HOME

Project Title 2

Detailed Cost Estimate

Heated Basement

GFA

2,418

DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	ESTD COST	SUB TOTAL	TOTAL COST
C103098 2'-0" Wide x 6'-0" High Linen Closet Faceframe	1	ea	0.267	32.000	13.450	0.000	45.45	\$ 45		
C103002 Mirrors w/out shelves	12	sf	0.111	17.92	5.63	0.00	23.55	\$ 283		
SUBTOTAL									\$ 13,801	
TOTAL - INTERIOR CONSTRUCTION										\$ 25,138
C20 STAIRCASES										
C2010 STAIR CONSTRUCTION										
C201002 CIP Concrete Stoop (8'-0" Wide; 2-risers)	4	cy	4.888	202.075	221.600	0.000	423.68	\$ 1,695		
C201001 Wood Stairs, for carpet	28	ea	0.410	55.00	12.35	0.00	67.35	\$ 1,886		
SUBTOTAL									\$ 3,581	
C2020 STAIR FINISHES										
See Finishes										
SUBTOTAL									\$ -	
TOTAL - STAIRCASES										\$ 3,581
C30 INTERIOR FINISHES										
C3010 WALL FINISHES										
C301005 PT; painted gyp	3,809	sf	0.010	0.11	0.27	0.00	0.38	\$ 1,447		
SUBTOTAL									\$ 1,447	
C3020 FLOOR FINISHES										
C302005 CPT-1: Carpet & Pad	76	sy	0.162	27.99	4.59	0.00	32.58	\$ 2,476		
C302004 RF-1: Sheet Vinyl	345	sf	0.032	3.75	0.91	0.00	4.66	\$ 1,608		
C302099 Wood Base; 3-1/2" Oak	339	lf	0.033	3.38	1.00	0.00	4.38	\$ 1,485		
C302099 Base Shoe (Oak quarter-round)	339	ea	0.030	0.45	0.91	0.00	1.36	\$ 461		
SUBTOTAL									\$ 6,030	
C3030 CEILING FINISHES										
C303003 ½" Gypsum Board	842	sf	0.330	0.57	1.54	0.00	2.11	\$ 1,777		
C303003 ¾" Vaulted Gypsum Board	480	sf	0.396	0.57	1.54	0.00	2.11	\$ 1,013		
C303099 Spray Applied Texture, add for above	1,322	sf	0.010	0.05	0.27	0.00	0.32	\$ 423		
SUBTOTAL									\$ 3,212	
TOTAL - INTERIOR FINISHES										\$ 10,690
D10 CONVEYING SYSTEMS										
D1010 ELEVATOR										
SUBTOTAL									\$ -	
D1020 ESCALATORS & MOVING WALKWAYS										
SUBTOTAL									\$ -	
D1030 OTHER CONVEYING SYSTEMS										
SUBTOTAL									\$ -	
TOTAL - CONVEYING SYSTEMS										\$ -
D20 PLUMBING										
D2010 PLUMBING FIXTURES										
D201001 Water Closet	1	ea	3.019	265.00	157.00	0.00	422.00	\$ 422		
D201003 Lavatory Sink	1	ea	2.500	325.00	130.00	0.00	455.00	\$ 455		
D201005 5' Tub and Shower Surround - 1 Piece	1	ea	4.000	780.00	127.00	0.00	907.00	\$ 907		
D201004 2 Compartment Sink Unit	1	ea	3.330	400.00	106.00	0.00	506.00	\$ 506		
D201099 Laundry Tub	1	ea	2.462	145.00	78.50	0.00	223.50	\$ 224		
D201004 Kitchen Faucet	1	ea	1.133	77.65	40.30	0.00	117.95	\$ 118		
D201003 Lavatory Faucet	1	ea	1.201	62.50	42.50	0.00	105.00	\$ 105		
D201005 Bath/Shower Faucet	1	ea	1.000	86.50	35.50	0.00	122.00	\$ 122		
D201099 Laundry Faucet	1	ea	0.800	171.00	28.50	0.00	199.50	\$ 200		
D201099 Hose Bib	2	ea	0.333	10.60	11.80	0.00	22.40	\$ 45		
SUBTOTAL									\$ 3,103	
D2020 DOMESTIC WATER DISTRIBUTION										
SOFT COLD WATER-										
D202001 ½" copper	150	lf	0.099	3.97	3.50	0.00	7.47	\$ 1,121		
D202001 ¾" copper	40	lf	0.105	5.95	3.73	0.00	9.68	\$ 387		
D202001 1" copper	20	lf	0.118	9.00	4.16	0.00	13.16	\$ 263		
HOT WATER-										
D202001 ½" copper	100	lf	0.099	3.970	3.500	0.000	7.47	\$ 747		
D202001 ¾" copper	35	lf	0.105	5.950	3.730	0.000	9.68	\$ 339		
D202001 1" copper	20	lf	0.118	9.000	4.160	0.000	13.16	\$ 263		
D202001 ½" thick rubber tubing, flexible, closed cell foam insulation, on ½" copper pipe	100	lf	0.089	1.126	4.299	0.000	5.43	\$ 543		
D202001 ½" thick rubber tubing, flexible, closed cell foam insulation, on ¾" copper pipe	30	lf	0.090	1.265	4.347	0.000	5.61	\$ 168		

PROTOTYPE HOME

Project Title 2

Detailed Cost Estimate

Heated Basement

GFA

2,418

DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	EST'D COST	SUB TOTAL	TOTAL COST
D202001 ¾" thick rubber tubing, flexible, closed cell foam insulation, on 1" copper pipe	20	lf	0.090	1.452	4.347	0.000	5.80	\$ 116		
D202005 Hot Water Heater, Gas Fired; 30gal	1	ea	4.000	985.00	231.00	0.00	1,216.00	\$ 1,216		
SUBTOTAL									\$ 5,163	
D2030 SANITARY WASTE										
D203001 2" Sanitary Waste Piping	120	ea	0.250	11.45	7.95	0.00	19.40	\$ 2,328		
D203001 4" Sanitary Waste Piping	25	ea	0.333	14.20	10.60	0.00	24.80	\$ 620		
D203002 4" Vent Piping	20	ea	0.333	14.20	10.60	0.00	24.80	\$ 496		
D203099 Sump Pump and Basket	1	ea	2.667	119.00	94.50	0.00	213.50	\$ 214		
SUBTOTAL									\$ 3,658	
D2040 RAIN WATER DRAINAGE										
See Gutters/Downspouts								\$ -		
SUBTOTAL									\$ -	
D2090 OTHER										
D209001 Gas Distribution Piping	50	lf	0.059	1.95	0.75	0.00	2.70	\$ 135		
SUBTOTAL									\$ 135	
TOTAL - PLUMBING										\$ 12,058
D30 HVAC										
D3020 HEAT GENERATION SYSTEMS										
D302003 Natural Gas Furnace with 78% AFUE Rating	1	ea	6.154	2,650.00	310.00	0.00	2,960.00	\$ 2,960		
SUBTOTAL									\$ 2,960	
D3030 COOLING GENERATION SYSTEMS										
D303099 2 Ton AC Condenser Unit, 13 SEER	1	ea	7.619	1,350.00	245.00	0.00	1,595.00	\$ 1,595		
SUBTOTAL									\$ 1,595	
D3040 DISTRIBUTION SYSTEMS										
D304007 Exhaust Fan	1	ea	0.533	117.00	22.50	0.00	139.50	\$ 140		
D304007 Return/Exhaust Grille 12x24	5	ea	0.444	33.00	15.15	0.00	48.15	\$ 241		
D304001 Floor Supply Diffuser	10	ea	0.250	44.50	8.55	0.00	53.05	\$ 531		
D304001 Galvanized Sheetmetal Duct	769	lbs	0.253	2.19	8.05	0.00	10.24	\$ 7,875		
SUBTOTAL									\$ 8,785	
D3060 CONTROLS AND INSTRUMENTATION										
D306001 Thermostat	1	ea	1.000	146.00	35.50	0.00	181.50	\$ 182		
SUBTOTAL									\$ 182	
D3070 SYSTEM TESTING & BALANCING										
D307002 System Testing & Balancing	1	ls		500.00			500.00	\$ 500		
D307003 Commissioning	1	ls		500.00			500.00	\$ 500		
SUBTOTAL									\$ 1,000	
TOTAL - HVAC										\$ 14,522
D40 FIRE PROTECTION										
D4010 FIRE PROTECTION										
NONE							0.00		\$ -	
SUBTOTAL									\$ -	
D4020 STANDPIPES										
NONE							0.00		\$ -	
SUBTOTAL									\$ -	
TOTAL - FIRE PROTECTION										\$ -
D50 ELECTRICAL										
D5010 SERVICE & DISTRIBUTION										
D501005 Load Center NEMA 3R (200 Amp Service)	1	ea	21.288	887.60	1,055.60	0.00	1,943.20	\$ 1,943		
SUBTOTAL									\$ 1,943	
D5020 LIGHTING & POWER										
D502002 8" Diameter Compact Fluorescent Downlight	11	ea	1.000	70.00	33.50	0.00	103.50	\$ 1,139		
D502002 Bathroom Light Fixture	1	ea	0.667	80.00	22.50	0.00	102.50	\$ 103		
D502002 Ceiling Fan	2	ea	1.509	125.00	51.00	0.00	176.00	\$ 352		
D502002 Exterior Light	7	ea	0.500	35.00	27.50	0.00	62.50	\$ 438		
D502002 Wall Mount Duplex Receptacle	17	ea	0.615	23.00	33.50	0.00	56.50	\$ 961		
D502002 GFI Duplex Receptacle	8	ea	1.000	56.50	54.50	0.00	111.00	\$ 888		
D502002 GFI Duplex Receptacle Weatherproof	2	ea	1.330	149.00	73.00	0.00	222.00	\$ 444		
D502002 Single Gang Switch	13	ea	0.500	19.85	27.50	0.00	47.35	\$ 616		
D502002 Dryer Outlet	1	ea	2.162	60.00	118.00	0.00	178.00	\$ 178		
D502099 Air Conditioning Circuit	1	ea	0.800	23.00	43.50	0.00	66.50	\$ 67		
D502099 Furnace Circuit	1	ea	1.330	27.00	73.00	0.00	100.00	\$ 100		
D502099 Exhaust Fans (wiring only)	1	ea	0.800	19.85	43.50	0.00	63.35	\$ 63		
D502099 Range Wiring	1	ea	2.000	91.00	1.09	0.00	92.09	\$ 92		

PROTOTYPE HOME

Project Title 2

Detailed Cost Estimate

Heated Basement

GFA

2,418

DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	EST'D COST	SUB TOTAL	TOTAL COST
D502099 Water Heater Wiring	1	ea	1.600	31.50	87.50	0.00	119.00	\$ 119		
D502099 Doorbell System	1	ea	0.500	30.00	16.85	0.00	46.85	\$ 47		
D502001 Allowance for Conduit and Wiring	63	fixt	0.500	31.50	27.50	0.00	59.00	\$ 3,717		
SUBTOTAL									\$	9,321
D5030 COMMUNICATION & SECURITY SYSTEMS										
D503003 Telephone Outlet	3	ea	0.615	23.000	33.500	0.000	56.50	\$ 170		
D503007 Data/Cable Outlet	3	ea	0.615	23.000	33.500	0.000	56.50	\$ 170		
SUBTOTAL									\$	339
D5090 OTHER ELECTRICAL SYSTEMS										
D509099 Smoke Detector	5	ea	1.290	126.00	43.50	0.00	169.50	\$ 848		
SUBTOTAL									\$	848
TOTAL - ELECTRICAL										\$ 12,451
E10 EQUIPMENT										
E1090 EQUIPMENT, GENERALLY										
E109004 Washer	1	ea	2.667	400.00	94.50	0.00	494.50	\$ 495		
E109004 Dryer	1	ea	5.330	500.00	140.00	0.00	640.00	\$ 640		
E109004 Dryer Vent Kit	1	ea	0.800	37.50	24.00	0.00	61.50	\$ 62		
E109004 Refrigerator	1	ea	5.143	835.00	229.00	0.00	1,064.00	\$ 1,064		
E109004 Dishwasher	1	ea	6.735	545.00	385.00	0.00	930.00	\$ 930		
E109004 Range Hood	1	ea	4.650	106.00	244.00	0.00	350.00	\$ 350		
E109004 Gas Range	1	ea	3.600	645.00	169.00	0.00	814.00	\$ 814		
SUBTOTAL									\$	4,354
TOTAL - EQUIPMENT										\$ 4,354
E20 FURNISHINGS										
E2010 FIXED FURNISHINGS										
SUBTOTAL									\$	-
E2020 MOVABLE FURNISHINGS										
SUBTOTAL										NIC
TOTAL - FURNISHINGS										\$ -
F10 SPECIAL CONSTRUCTION										
F10 SPECIAL CONSTRUCTION										
SUBTOTAL									\$	-
TOTAL - SPECIAL CONSTRUCTION										\$ -
F20 SELECTIVE BUILDING DEMOLITION										
F2010 BUILDING ELEMENTS DEMOLITION										
SUBTOTAL									\$	-
F2020 HAZARDOUS COMPONENTS ABATEMENT										
Excluded SUBTOTAL									\$	-
TOTAL - SELECTIVE BUILDING DEMOLITION										\$ -
G SITE PREP/DEVELOPMENT										
G10 SITE PREP / DEMOLITION										
G103099 Silt fence	250	lf	0.010	0.41	0.22	0.00	0.63	\$ 158		
G101001/5 Clear and grub	0.5	acre	9.120	0.00	641.25	0.00	641.25	\$ 321		
SUBTOTAL									\$	478
G20 SITE IMPROVEMENTS										
G203003 Concrete patio/sidewalk	90	sf	0.040	1.65	1.08	0.00	2.73	\$ 246		
G201003 Asphalt Paving; 2" Base + 1" Topping	1,250	sf	0.003	1.25	0.31	0.00	1.56	\$ 1,950		
G201001 Paving Subbase; 6" crushed stone	1,250	sf	0.001	0.91	0.09	0.00	1.00	\$ 1,250		
G205004 Final Grading & Seeding	22	msf	0.044	22.00	0.99	0.00	22.99	\$ 501		
G205099 Landscaping	1	ls	0.000	500.00	500.00	0.00	1,000.00	\$ 1,000		
SUBTOTAL									\$	4,947
G30 CIVIL MECHANICAL UTILITIES										
Water Service										
G301001 6" DIP water supply	50	lf	0.250	14.60	7.15	0.00	21.75	\$ 1,088		
Sanitary Sewer										
G302001 6" PVC sanitary sewer	50	lf	0.690	3.68	1.58	0.00	5.26	\$ 263		
Gas Service										
G306006 Gas Service Line	50	lf	0.059	1.95	0.75	0.00	2.70	\$ 135		

PROTOTYPE HOME

Project Title 2

Detailed Cost Estimate

Heated Basement

GFA

2,418

DESCRIPTION	QTY	UNIT	Labor Hours	Material	Installation	Equipment	\$ Rate	EST'D COST	SUB TOTAL	TOTAL COST
SUBTOTAL									\$ 1,486	
G40 ELECTRICAL UTILITIES										
G402004 Incoming Electrical Service Feeder	50	If	0.067	3.47	2.25	0.00	5.72	\$ 286		
SUBTOTAL									\$ 286	
G90 OTHER SITE CONSTRUCTION										
SUBTOTAL									\$ -	
TOTAL - SITE DEVELOPMENT										\$ 7,196

PROJECT SUBTOTAL										\$ 199,628
MARK UP										
GENERAL COND. / PERMIT / INS./FEE										
General Conditions, O.H. & Profit	11.00%							\$ 21,959	\$ 21,959	
CONTINGENCIES/ESCALATION										
DESIGN & PRICING										
Design and pricing contingency	2.50%							\$ 4,991	\$ 4,991	
ESCALATION										
To Construction Midpoint	0.52%							\$ 1,161	\$ 1,161	
TOTAL - MARK UP /CONTINGENCIES / ESCALATION										\$ 28,111

PROJECT TOTAL										\$ 227,738
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Area Calculations

<u>Area</u>	<u>Conditioned</u>	<u>Unconditioned</u>	<u>Total</u>
Crawl Space:	0	960	960
Main Floor:	972	0	972
2nd Floor:	486	0	486
Garage:	0	650	650
Gross Floor Area:	1,458	1,610	3,068

Note: GFA in Backup is Conditioned Space only

ESCALATION CALCULATOR

Base Escalation Rate (Yearly)

2.50%

Date of Estimate

August 12, 2011

Construction Start

April 1, 2012

Construction Finish

September 1, 2012

Construction Midpoint

June 16, 2012

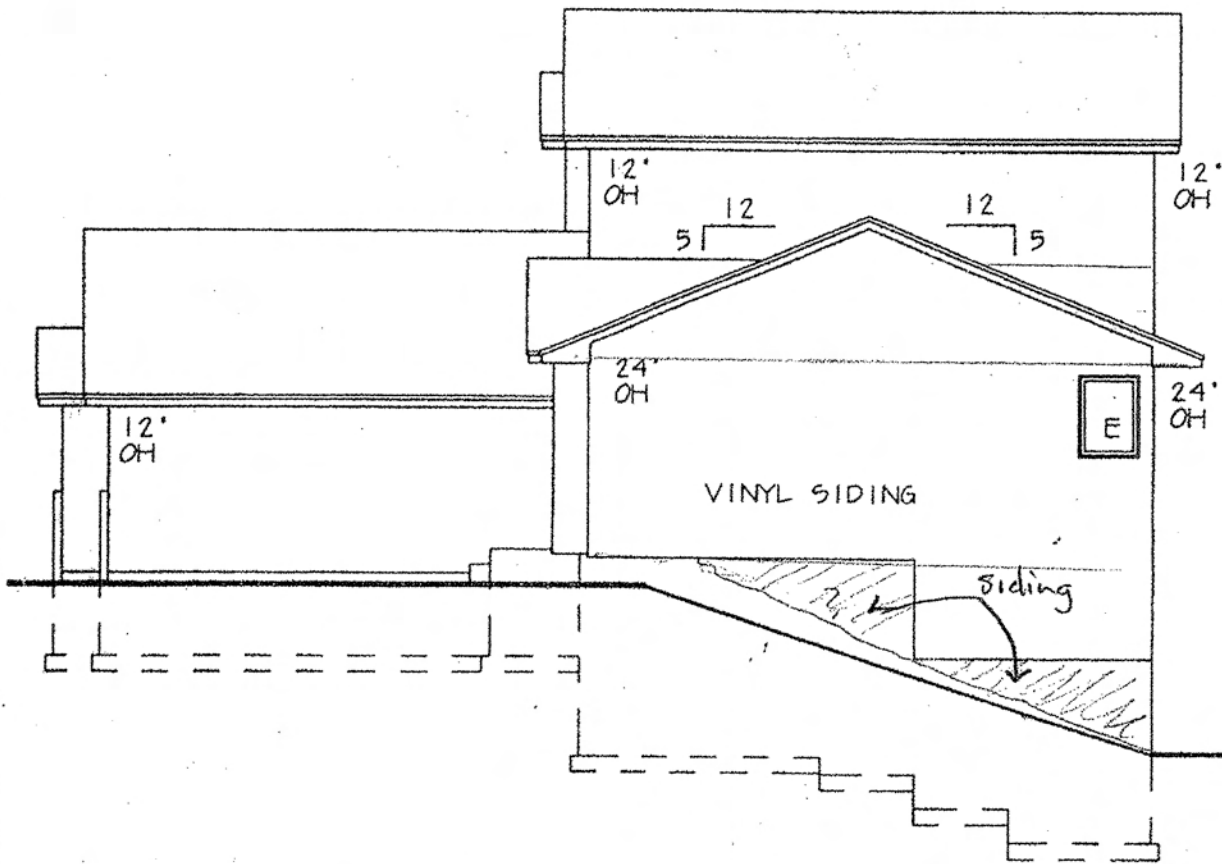
Est. Date to Const. Start	233.00	days
	7.66	months
	0.64	years

Const. Start to Midpoint	76.50	days
	2.52	months
	0.21	years

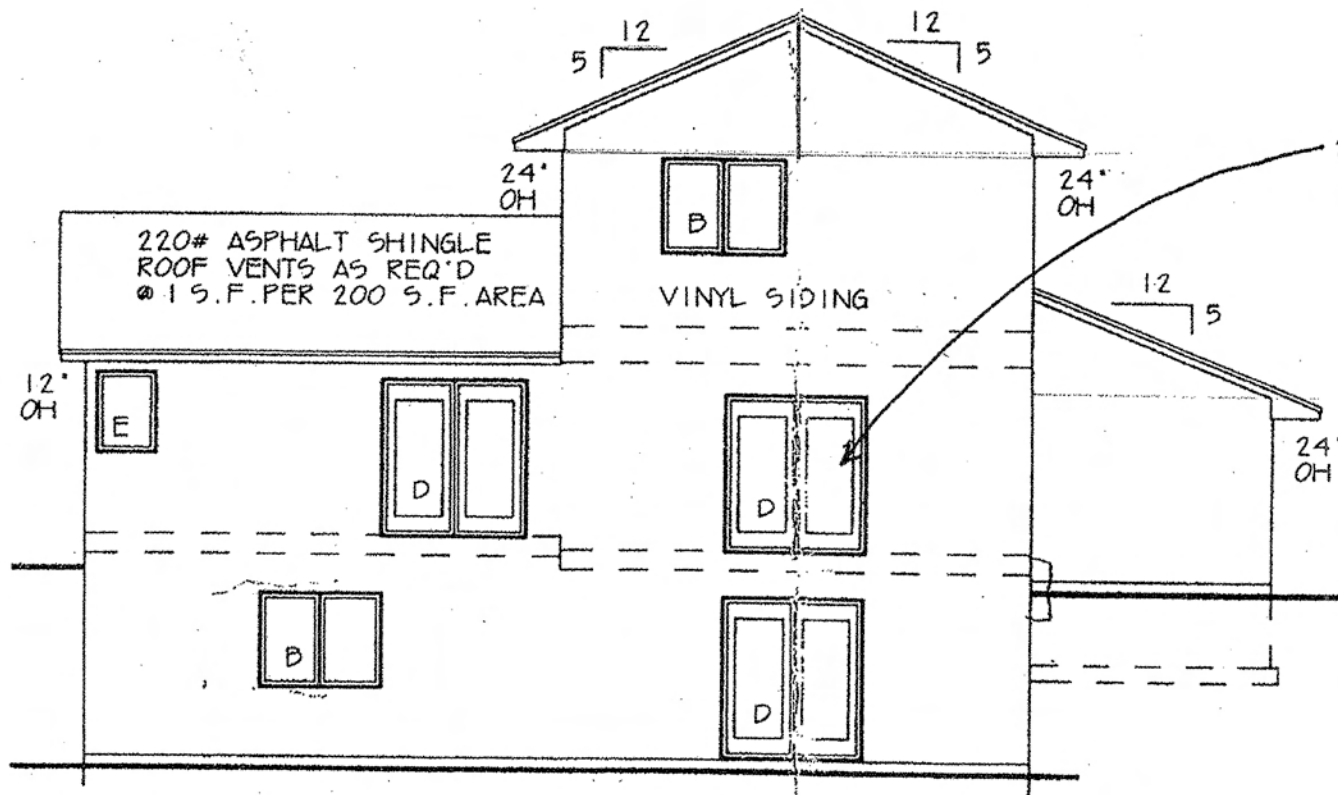
Estimate Date to Midpoint	309.50	days
	13.17	months
	1.10	years

Escalation to Mid-Point	0.52%	total
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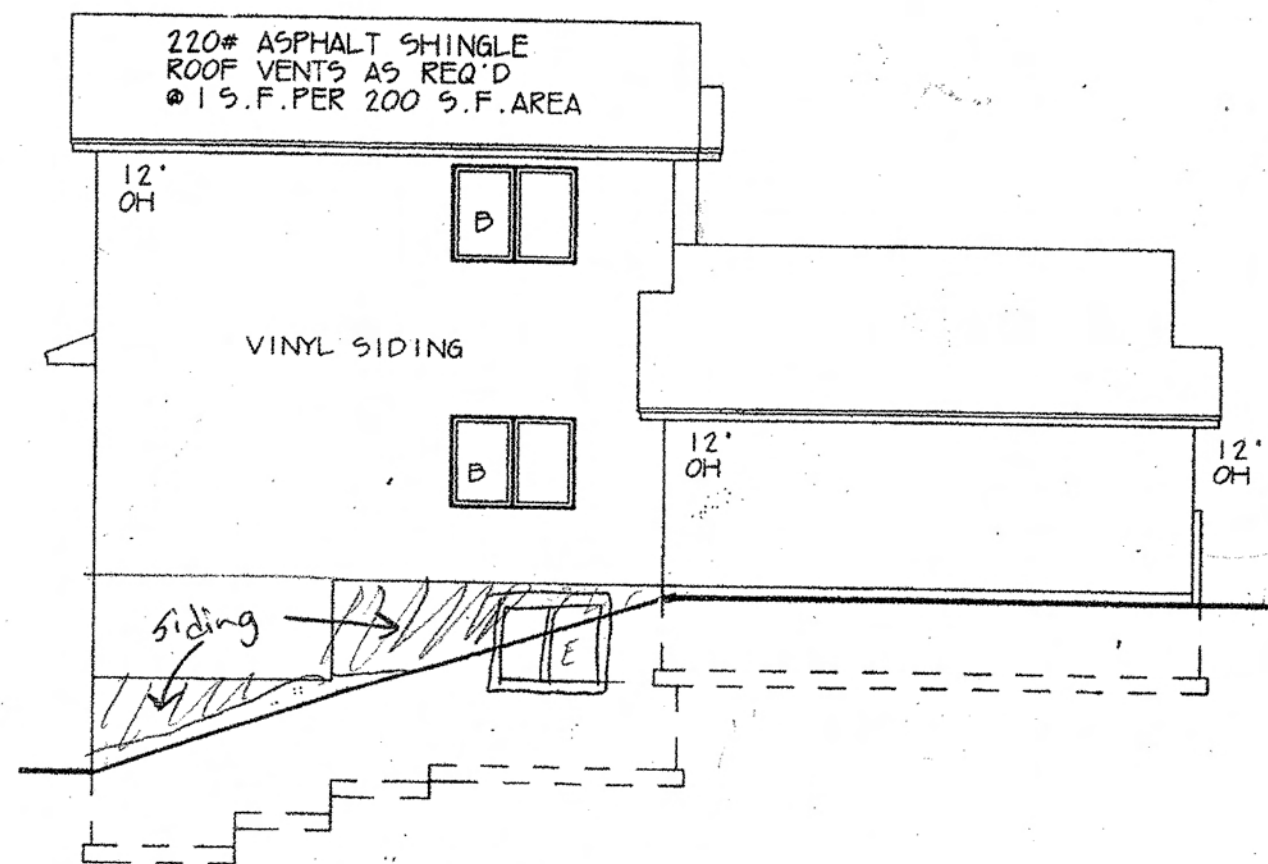
APPENDIX B
PROTOTYPE DESIGN DOCUMENTS – SINGLE FAMILY HOME



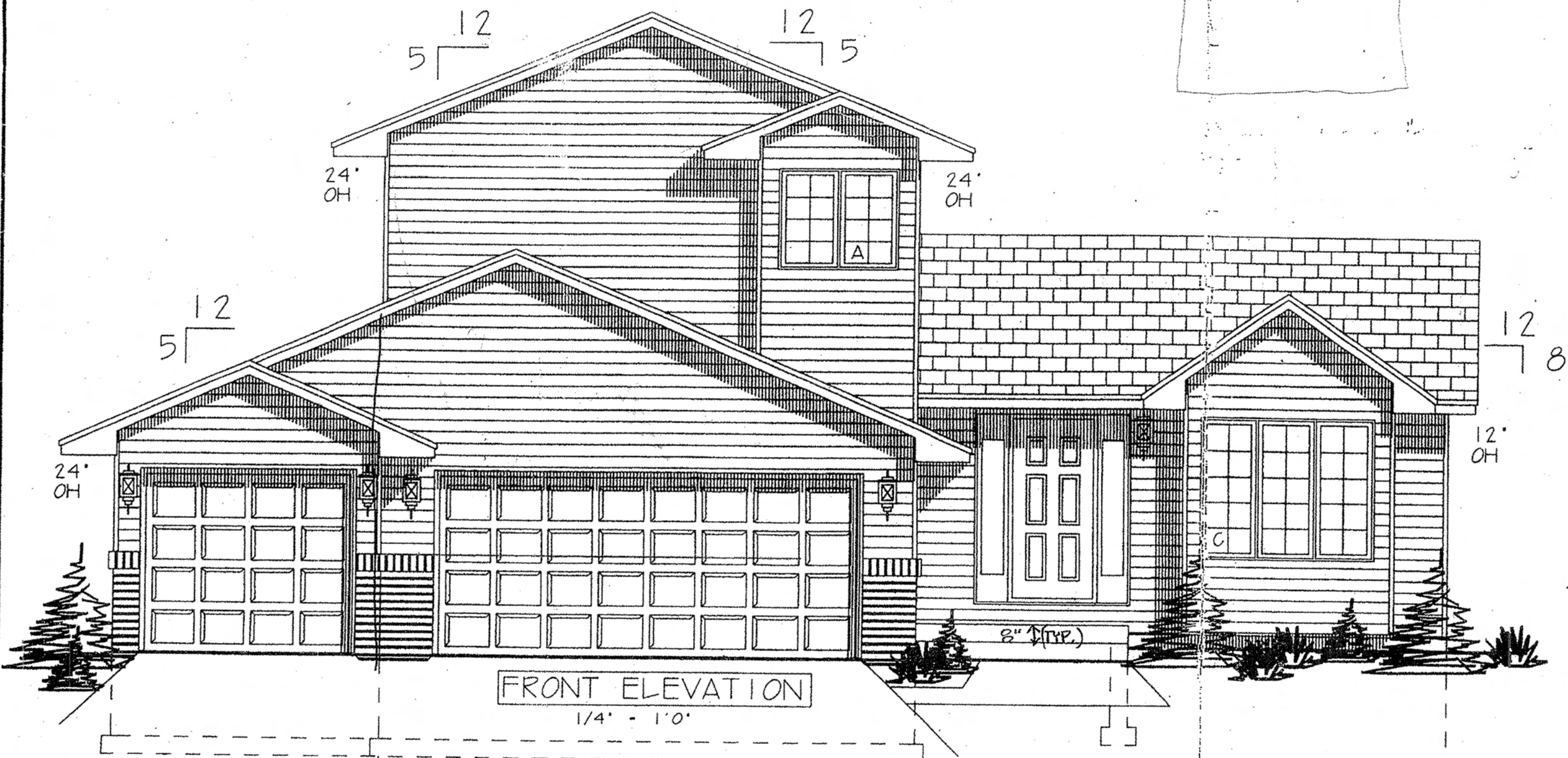
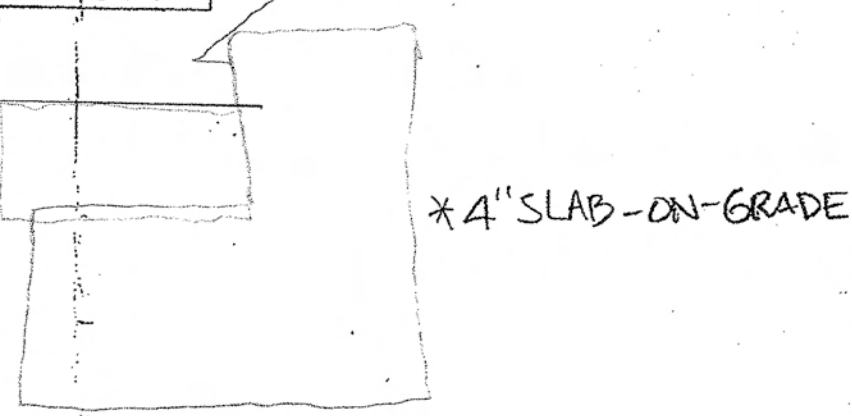
RIGHT ELEVATION
1/8" = 1'0"



REAR ELEVATION
1/8" = 1'0"



LEFT ELEVATION
1/8" = 1'0"

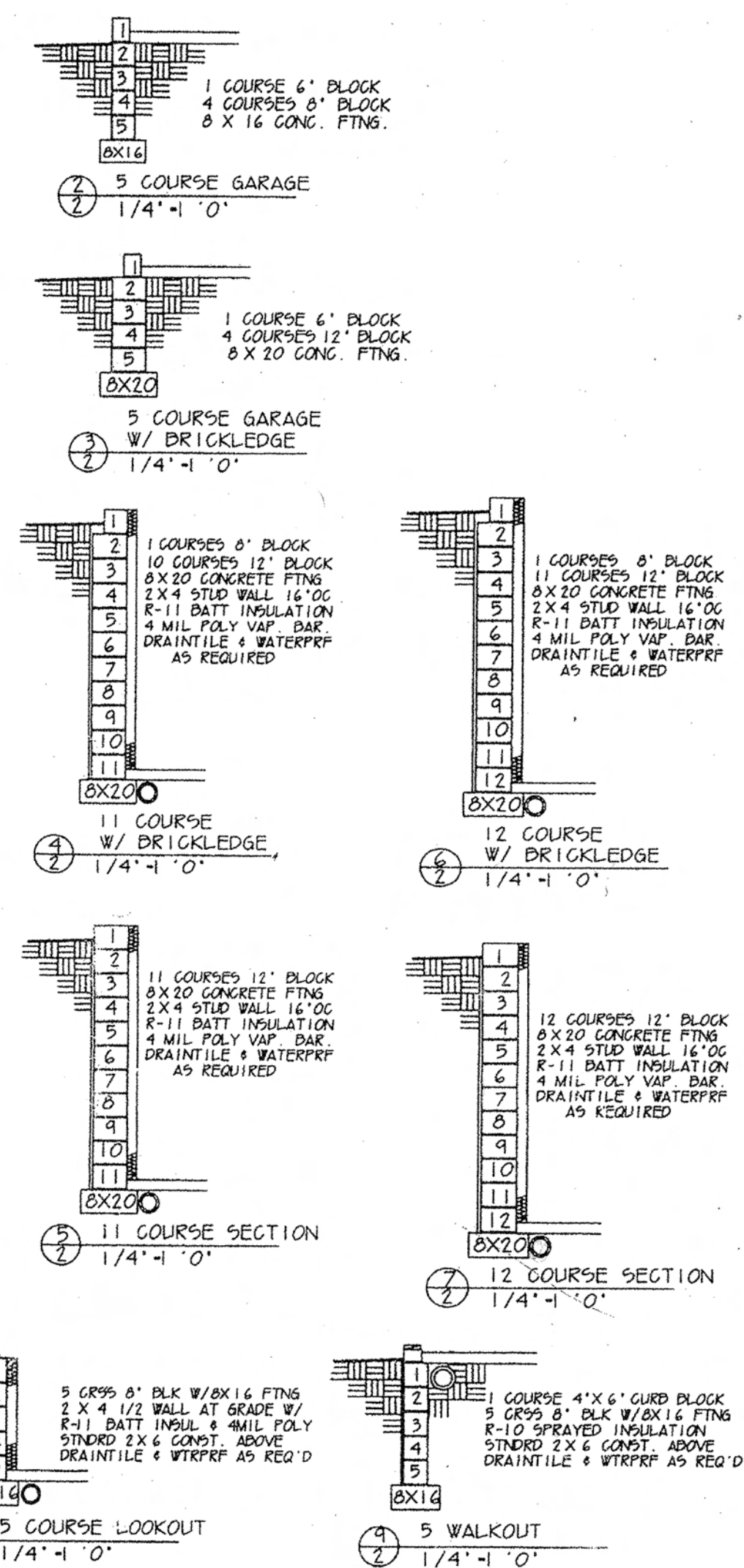
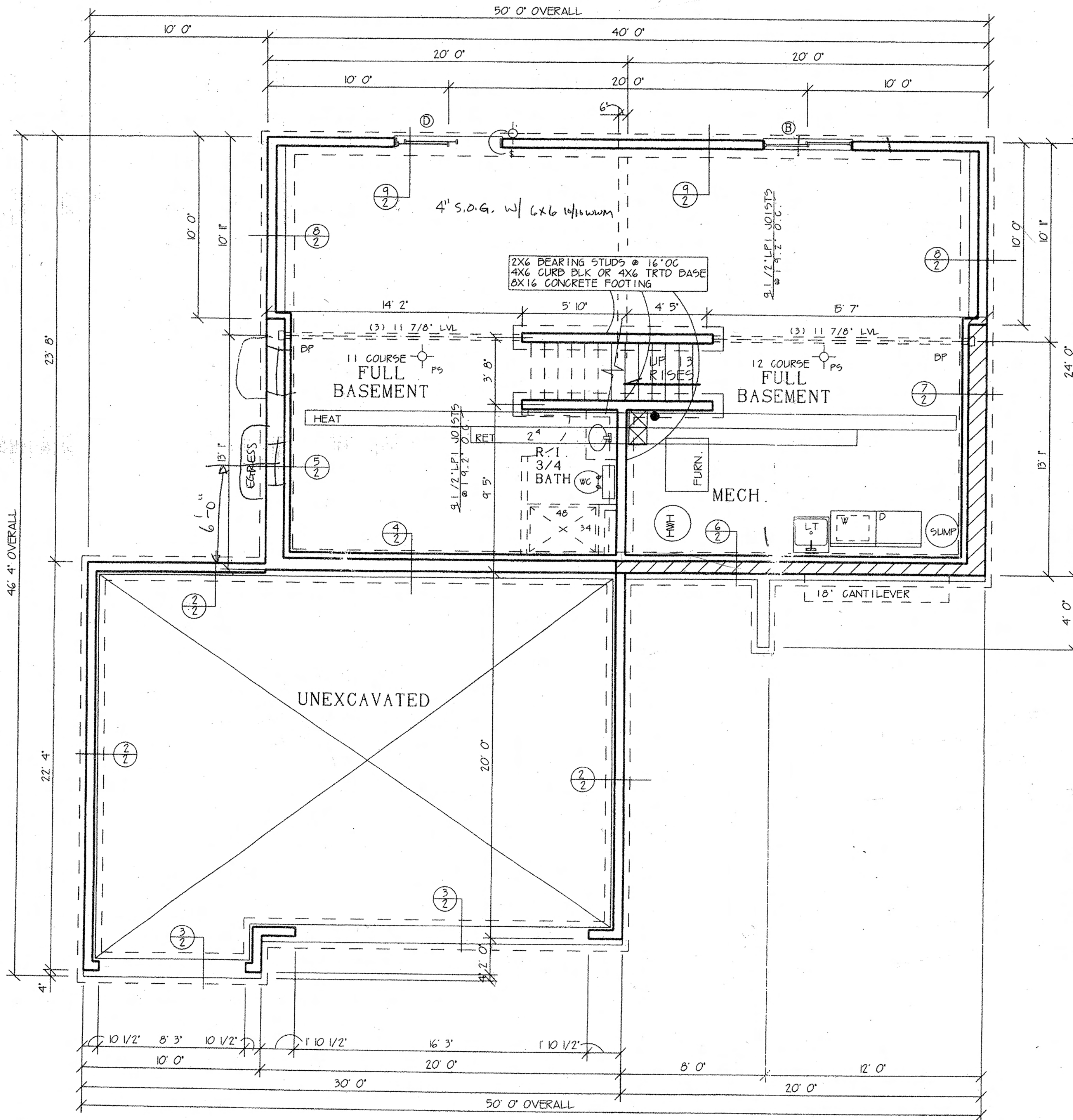


FRONT ELEVATION
1/4" = 1'0"

BRAND/STYLE		VINYL GLIDERS		VETTER	
#	TYPE	HEADER	QTY	ROUGH OPENING	
A	VGL1-4040	(2) 2 X 10'S	1	4'0" X 4'0"	
B	VGL1-5040	(2) 2 X 10'S	4	5'0" X 4'0"	
C	VGL3-6050	(2) 2 X 10'S	2	6'0" X 5'0"	
D	VPD2-6068	(2) 2 X 10'S	3	6'0" X 6'8"	
E	TCA1-2036	(2) 2 X 10'S	2	2'0" X 3'6"	

- 25 YEAR ASPHALT SHINGLE
- ALUMINUM SOFFIT AND FASCIA
- VINYL SIDING
- BRICK AS SHOWN

		PLAN # 970605
DATE 6/22/97	SCALE AS NOTED	SRN
ELEVATIONS		PG 1 OF 5

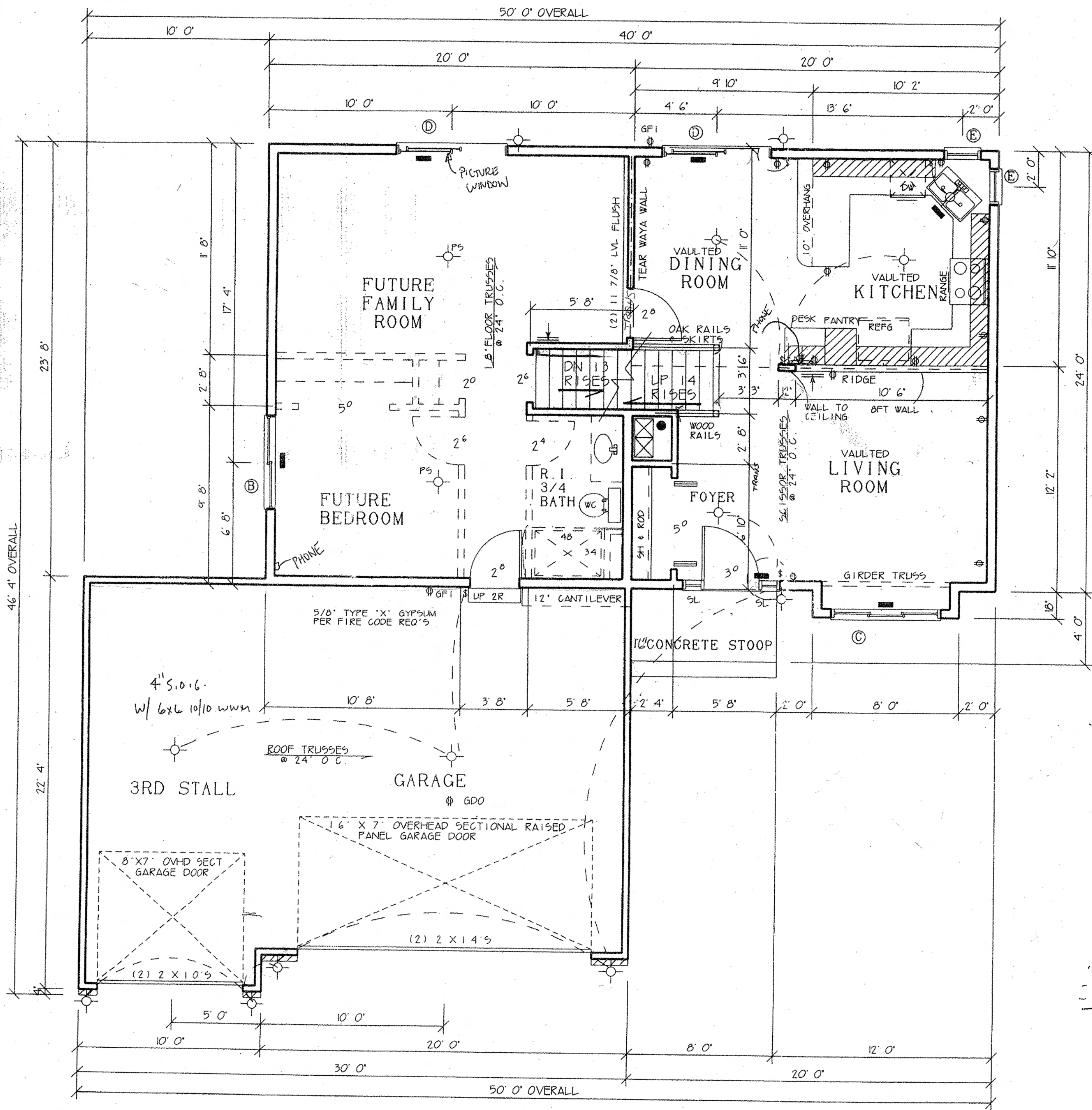


HEATING, ELECTRICAL AND CABINET LAYOUTS ARE SHOWN FOR EXAMPLE ONLY PLACEMENT AS BUILT MAY VARY FROM THESE PLANS AND SPECIFICATIONS

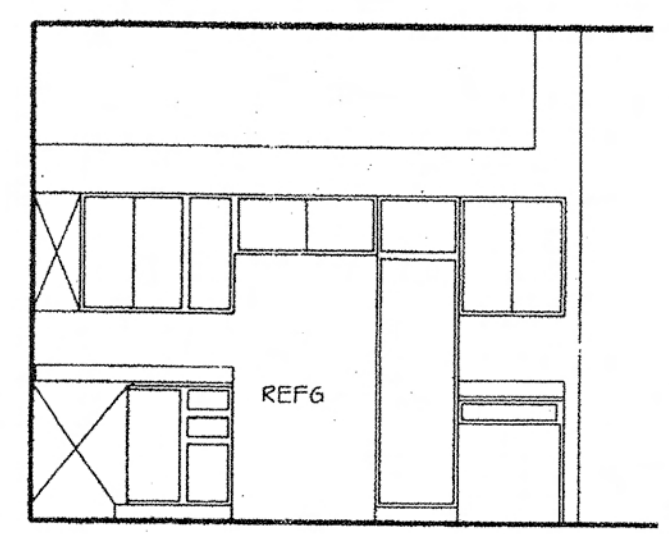
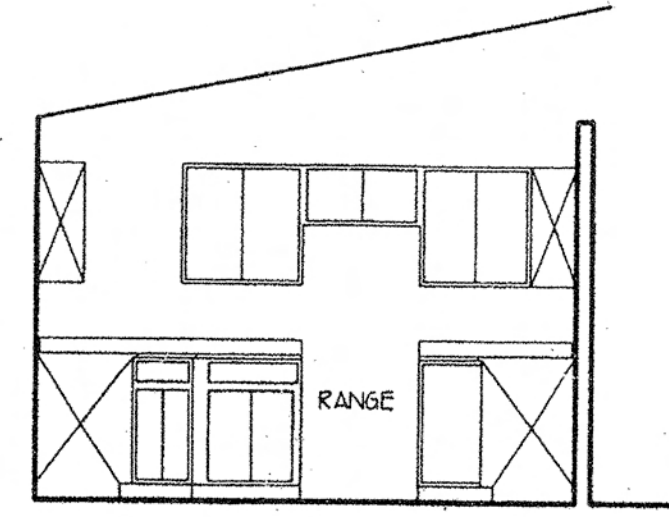
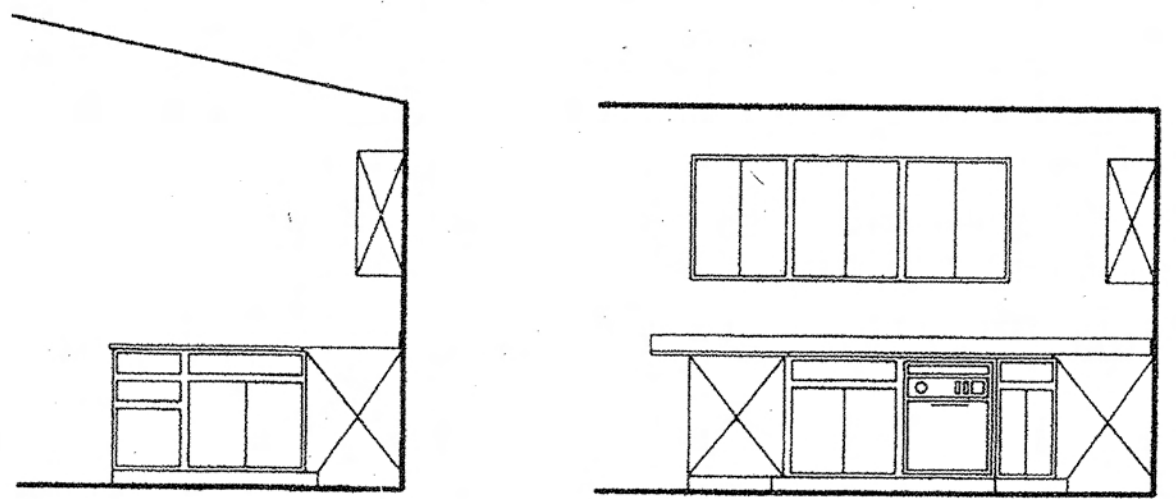
ALL BEAM, POST AND FOOTING SIZES SHOULD BE VERIFIED BY BUILDER FOR ADHERENCE TO UNIFORM BUILDING CODE PRIOR TO CONSTRUCTION.

BUILDER SHALL VERIFY THAT ALL DIMENSIONS AND CONSTRUCTION METHODS NOTED OR IMPLIED IN THESE DOCUMENTS ARE CORRECT AND FEASIBLE AND TAKE RESPONSIBILITY FOR CORRECTION OF ANY ERRORS HEREIN PRIOR TO CONSTRUCTION.

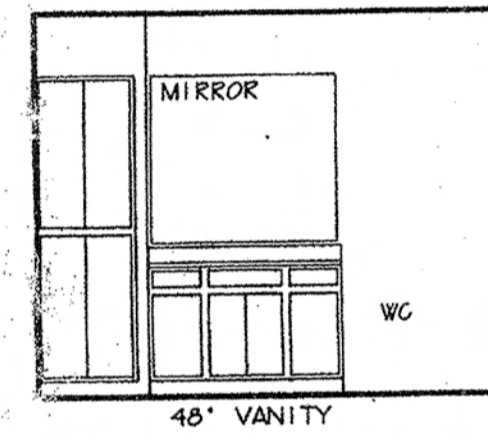
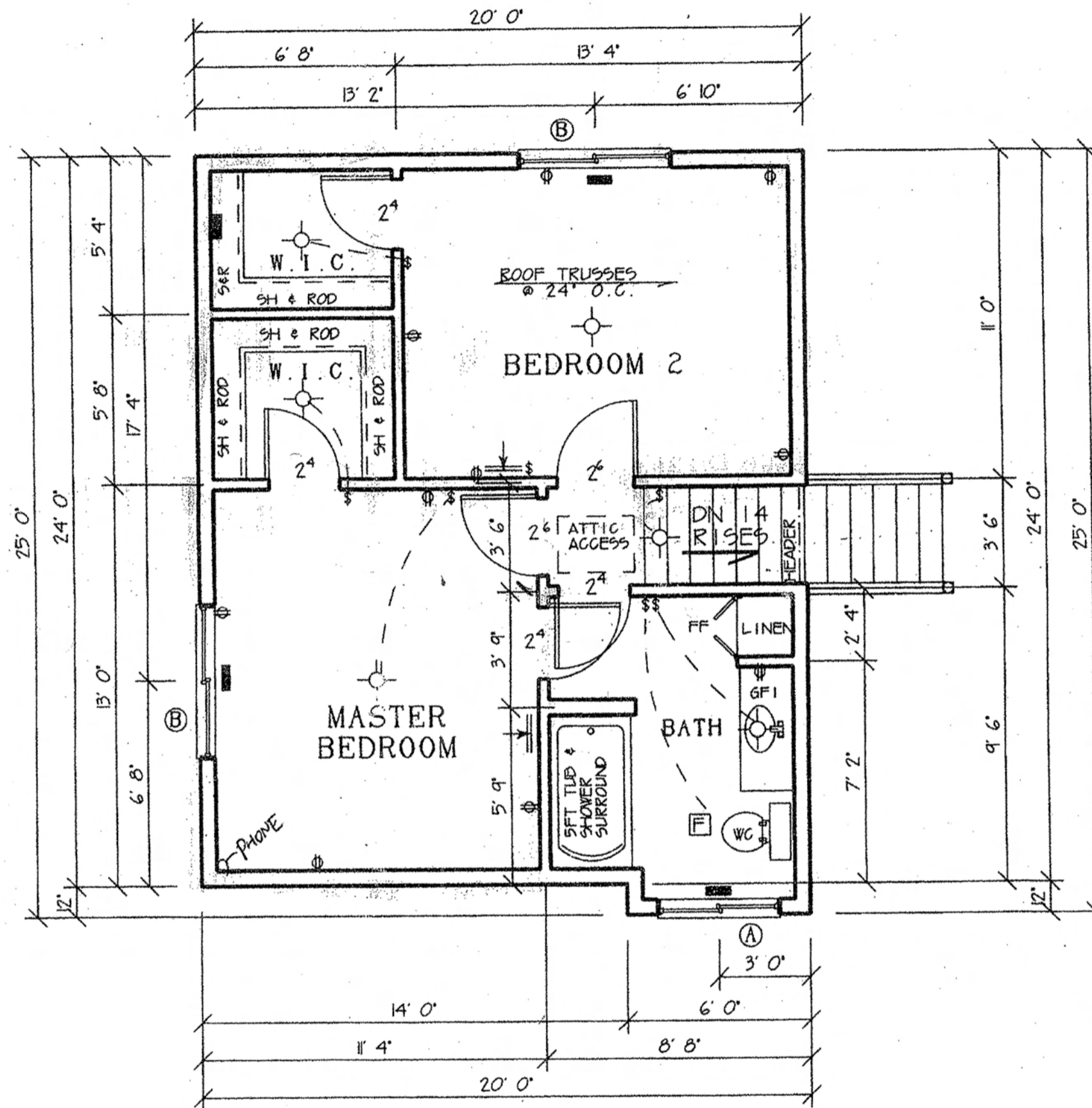
		PLAN #
		970605
DATE 6/22/97	SCALE 1/4" = 1' 0"	SRN
BASEMENT PLAN		PG 2 OF 5



173 SF
 - 14
 - 90



		PLAN # 970605
DATE 6/22/97	SCALE 1/4" = 1' 0"	SRN
		PG 3 OF 5



		PLAN # 970605
DATE 6/22/97	SCALE 1/4" = 1' 0"	SRN

TYPICAL ROOF SECTION

220# ASPHALT SHINGLES	
15# ROOFING FELT	
1/2" OSB (ORIENTED STRAND BOARD)	
MANUFACTURED ROOF TRUSSES @24' O.C	
EXTERIOR AIR FILM	R- 00.61
BLOWN INSULATION	R- 44.00
4 MIL POLY VAPOR BARRIER	
1" AIR BAFFLES	R- 00.58
5/8" GYPSUM BOARD	R- 00.61
INTERIOR AIR FILM	
TOTAL R VALUE	R- 45.80

ALUMINUM SOFFIT & FASCIA

TYPICAL WALL SECTION

EXTERIOR AIR FILM	R- 00.17
VINYL SIDING	R- 00.62
24/32 BUILDRITE SHEATHING	R- 02.06
2X6 STUDS @ 16" O.C.	
BATT INSULATION	R- 19.00
4 MIL POLY VAPOR BARRIER	
1/2" GYPSUM BOARD	R- 00.45
TAPE AND PAINT	
INTERIOR AIR FILM	R- 00.68
TOTAL R VALUE	R- 22.98

3/4" T & G OSB SUBFLOOR
18" FLOOR TRUSSES @ 24" O.C
R-19 RIM INSULATION

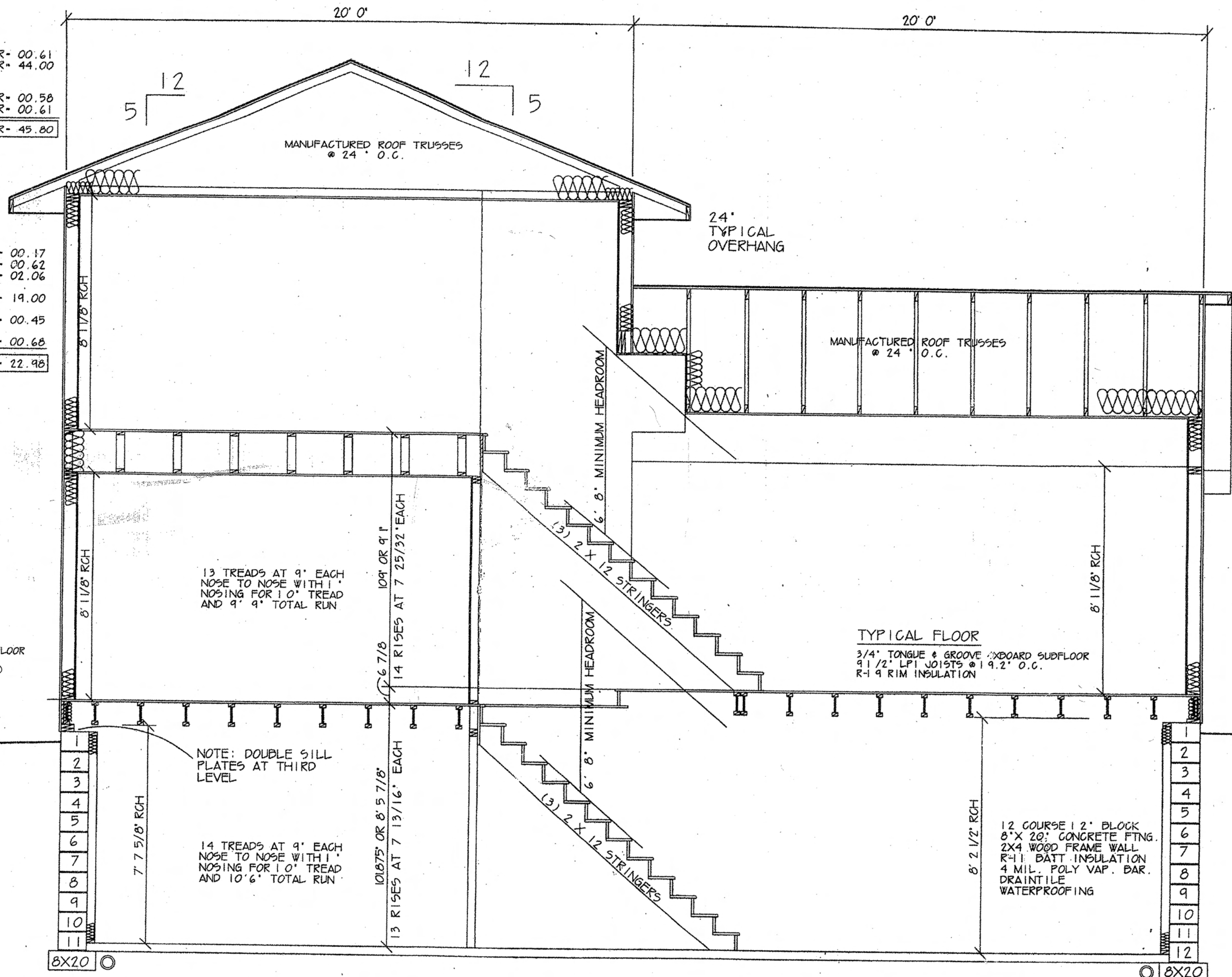
STANDARD 2X6 CONSTRUCTION
W R-19 BATT INSULATION

TYPICAL FLOOR

3/4" TONGUE & GROOVE OSB SUBFLOOR
9 1/2" LFI JOISTS @ 19.2" O.C.
R-19 RIM INSULATION

2X6 TREATED SILL
SILL SEALER
ANCHOR STRAPS AT 5'0" O.C.
2X6 STUD WALL ABOVE

11 COURSE 12" BLOCK
8"X 20" CONCRETE FTNG.
2X4 WOOD FRAME WALL
R-11 BATT INSULATION
4 MIL. POLY VAP. BAR.
DRAINTILE
WATERPROOFING



L X 12/19.2 +1
QY
X XL

		PLAN #
		970605
DATE 6/22/97	SCALE 3/8" = 1'0"	SRN
CROSS SECTION		PG 5 OF 5

APPENDIX C
COST DATABASE FOR VARIOUS PUBLISHED CODES/STANDARD
DESCRIPTIONS

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
Floor Insulation	EcoTouch R19 Kraft 6-1/4 in. x 15 in. x 93 in. Batts in Bag Insulation - floors	sf	0.013	\$ 0.52	\$ 0.06	\$ -	\$ 0.58	R-19 Batt
Floor Insulation	EcoTouch R19 Kraft 6-1/4 in. x 23 in. x 93 in. Batts in Bag Insulation - floors	sf	0.013	\$ 0.53	\$ 0.06	\$ -	\$ 0.58	R-19 Batt
Floor Insulation	EcoTouch R-21 Kraft 5-1/2 in. x 23 in. x 93 in. Batts in Bag Insulation - floors	sf	0.014	\$ 0.76	\$ 0.08	\$ -	\$ 0.84	R-21 Batt
Floor Insulation	R-38 Fiberglass Batt	sf	0.017	\$ 0.97	\$ 0.83	\$ -	\$ 1.80	R-38
Renewables (Cool Roof)	COOLR® metal roof panels; Acrylic Coated Galvalume	sf	0.027	\$ 1.19	\$ 1.31	\$ -	\$ 2.50	ISR = 0.67
Renewables (Cool Roof)	COOLR® metal roof panels; Aged Copper	sf	0.027	\$ 1.19	\$ 1.31	\$ -	\$ 2.50	ISR = 0.47
Renewables (Cool Roof)	COOLR® metal roof panels; Ash Gray	sf	0.027	\$ 1.19	\$ 1.31	\$ -	\$ 2.50	ISR = 0.39
Renewables (Cool Roof)	COOLR® metal roof panels; Burgundy	sf	0.027	\$ 1.19	\$ 1.31	\$ -	\$ 2.50	ISR = 0.25
Renewables (Cool Roof)	COOLR® metal roof panels; Champagne Metallic	sf	0.027	\$ 1.23	\$ 1.31	\$ -	\$ 2.54	ISR = 0.37
Renewables (Cool Roof)	COOLR® metal roof panels; Colonial Red L/S	sf	0.027	\$ 1.19	\$ 1.31	\$ -	\$ 2.50	ISR = 0.29
Renewables (Cool Roof)	COOLR® metal roof panels; Copper Metallic	sf	0.027	\$ 1.23	\$ 1.31	\$ -	\$ 2.54	ISR = 0.49
Renewables (Cool Roof)	COOLR® metal roof panels; Evergreen L/S	sf	0.027	\$ 1.19	\$ 1.31	\$ -	\$ 2.50	ISR = 0.26
Renewables (Cool Roof)	COOLR® metal roof panels; Frisco White	sf	0.027	\$ 1.19	\$ 1.31	\$ -	\$ 2.50	ISR = 0.68
Renewables (Cool Roof)	COOLR® metal roof panels; Parchment	sf	0.027	\$ 1.19	\$ 1.31	\$ -	\$ 2.50	ISR = 0.54
Renewables (Cool Roof)	COOLR® metal roof panels; Patina	sf	0.027	\$ 1.19	\$ 1.31	\$ -	\$ 2.50	ISR = 0.28
Renewables (Cool Roof)	COOLR® metal roof panels; Phoenix White	sf	0.027	\$ 1.19	\$ 1.31	\$ -	\$ 2.50	ISR = 0.68
Renewables (Cool Roof)	COOLR® metal roof panels; Regal Red	sf	0.027	\$ 1.19	\$ 1.31	\$ -	\$ 2.50	ISR = 0.42
Renewables (Cool Roof)	COOLR® metal roof panels; Regal White	sf	0.027	\$ 1.19	\$ 1.31	\$ -	\$ 2.50	ISR = 0.68
Renewables (Cool Roof)	COOLR® metal roof panels; Sandstone	sf	0.027	\$ 1.19	\$ 1.31	\$ -	\$ 2.50	ISR = 0.54
Renewables (Cool Roof)	COOLR® metal roof panels; Seal Brown L/S	sf	0.027	\$ 1.19	\$ 1.31	\$ -	\$ 2.50	ISR = 0.30
Renewables (Cool Roof)	COOLR® metal roof panels; Sierra Tan	sf	0.027	\$ 1.19	\$ 1.31	\$ -	\$ 2.50	ISR = 0.35
Renewables (Cool Roof)	COOLR® metal roof panels; Silver Metallic	sf	0.027	\$ 1.23	\$ 1.31	\$ -	\$ 2.54	ISR = 0.60
Renewables (Cool Roof)	COOLR® metal roof panels; Slate Gray L/S	sf	0.027	\$ 1.19	\$ 1.31	\$ -	\$ 2.50	ISR = 0.32
Renewables (Cool Roof)	COOLR® metal roof panels; Solar White	sf	0.027	\$ 1.19	\$ 1.31	\$ -	\$ 2.50	ISR = 0.68
Renewables (Cool Roof)	COOLR® metal roof panels; Stone White	sf	0.027	\$ 1.19	\$ 1.31	\$ -	\$ 2.50	ISR = 0.60
Renewables (Cool Roof)	COOLR® metal roof panels; Teal Patina	sf	0.027	\$ 1.19	\$ 1.31	\$ -	\$ 2.50	ISR = 0.37
Renewables (Cool Roof)	COOLR® metal roof panels; Teal Patina L/S	sf	0.027	\$ 1.19	\$ 1.31	\$ -	\$ 2.50	ISR = 0.37
Renewables (Cool Roof)	COOLR® metal roof panels; Terra Cotta	sf	0.027	\$ 1.19	\$ 1.31	\$ -	\$ 2.50	ISR = 0.35
Renewables (Cool Roof)	COOLR® metal roof panels; Terra Cotta L/S	sf	0.027	\$ 1.19	\$ 1.31	\$ -	\$ 2.50	ISR = 0.37
Weather Barriers	15# Asphalt Felt	sf	0.002	\$ 0.05	\$ 0.07	\$ -	\$ 0.12	N/A
Weather Barriers	Housewrap, exterior, spun bonded polypropylene	sf	0.002	\$ 0.15	\$ 0.07	\$ -	\$ 0.22	R-2
Weather Barriers	Self Adhering polyethylene and rubberized asphalt underlayment	sq	0.364	\$ 102.59	\$ 12.01	\$ -	\$ 114.60	N/A
Roof Coverings	Standard 25-yr, 3-tab shingles, 210-235lb., pneumatic nailed, Sovereign White	sq	1.143	\$ 105.93	\$ 37.72	\$ -	\$ 143.65	ISR = 0.27
Roof Coverings	Standard, Laminated multi-layered shingles, 240-260 lb, pneumatic nailed, Natural Shadow	sq	1.422	\$ 132.66	\$ 46.93	\$ -	\$ 179.59	ISR = 0.26
Roof Coverings	Standard, Laminated multi-layered shingles, 240-260 lb, pneumatic nailed, Weathered Wood	sq	1.422	\$ 136.62	\$ 46.93	\$ -	\$ 183.55	ISR = 0.40
Roof Coverings	Premium, Laminated multi-layered shingles, 260-300 lb, pneumatic nailed, Silver Birch	sq	1.831	\$ 198.76	\$ 60.42	\$ -	\$ 259.18	ISR = 0.26
Roof Coverings	Premium, Laminated multi-layered shingles, 300-385 lb, pneumatic nailed, Weathered Wood	sq	2.133	\$ 192.65	\$ 70.39	\$ -	\$ 263.04	ISR = 0.25

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
Roof Coverings	Premium, Laminated multi-layered shingles, 300-385 lb, pneumatic nailed, Santa Fe Blend	sq	2.133	\$ 192.65	\$ 70.39	\$ -	\$ 263.04	ISR = 0.41
Roof Coverings	Clay tile, Spanish, 91 pieces per square, Red	sq	4.440	\$ 786.98	\$ 146.52	\$ -	\$ 933.50	ISR = .30
Roof Coverings	Clay tile, Spanish, 88 pieces per square, Brown	sq	4.440	\$ 1,082.95	\$ 146.52	\$ -	\$ 1,229.47	ISR = 0.13
Roof Coverings	Clay tile, Spanish, 88 pieces per square, Glazed White	sq	4.440	\$ 1,141.61	\$ 146.52	\$ -	\$ 1,288.13	ISR = .79
Roof (Ceiling/Attic) Insulation	12 in. x 16 in. x 1 ft. R3.7 Blow-In Natural Insulation	sf	0.016	\$ 0.32	\$ 0.01	\$ 0.20	\$ 0.54	R-3.7 Blow-In (R13-R60)
Roof (Ceiling/Attic) Insulation	Atticat Loose Fill Blowing Insulation (8.13 cuft) assume installed to R-25 (75sf/bag)	sf	0.017	\$ 0.46	\$ 0.42	\$ 0.20	\$ 1.08	R-30 Fiberglass
Roof (Ceiling/Attic) Insulation	Atticat Loose Fill Blowing Insulation (8.13 cuft) assume installed to R-30 (65sf/bag)	sf	0.017	\$ 0.53	\$ 0.44	\$ 0.21	\$ 1.18	R-30 Fiberglass
Roof (Ceiling/Attic) Insulation	EcoTouch R-30 Kraft 9-1/2 in. x 16 in. x 48 in. Batts in Bag Insulation - Attics	sf	0.016	\$ 0.96	\$ 0.05	\$ -	\$ 1.01	R-30 Batt
Roof (Ceiling/Attic) Insulation	EcoTouch R-30 Kraft 9-1/2 in. x 24 in. x 48 in. Batts in Bag Insulation - Attics	sf	0.006	\$ 0.96	\$ 0.05	\$ -	\$ 1.01	R-30 Batt
Roof (Ceiling/Attic) Insulation	EcoTouch R-30 Unfaced 9 in. x 15 in. x 25 ft. Continuous Roll Insulation; Attics	sf	0.007	\$ 0.46	\$ 0.24	\$ -	\$ 0.70	R-30 Fiberglass
Roof (Ceiling/Attic) Insulation	EcoTouch R-30 Unfaced 9-1/2 in. x 24 in. x 48 in. Batts in Bag Insulation - Attics	sf	0.006	\$ 0.94	\$ 0.06	\$ -	\$ 1.00	R-30 Batt
Roof (Ceiling/Attic) Insulation	EcoTouch R-38 Kraft 12 in. x 24 in. x 48 in. Batts in Bag Insulation - Attics	sf	0.006	\$ 1.11	\$ 0.07	\$ -	\$ 1.18	R-38 Batt
Roof (Ceiling/Attic) Insulation	R-10 Attic Stair Insulator II 25-1/2 in. x 54 in.	ea	0.048	\$ 50.77	\$ 2.19	\$ -	\$ 52.96	R-10 Fiberglass
Roof (Ceiling/Attic) Insulation	R-30 blown cellulose; 8-11/16" thick	sf	0.009	\$ 0.55	\$ 0.35	\$ 0.15	\$ 1.05	R-30
Roof (Ceiling/Attic) Insulation	R-30 Faced Attic Hatch Insulation Kit (1-1/2 in. wide x 1/4 in. thick x 10 ft. Long)	ea	0.010	\$ 22.76	\$ 0.46	\$ -	\$ 23.22	R-30 Fiberglass
Roof (Ceiling/Attic) Insulation	R-30 Fiberglass Batt; 13" thick	sf	0.017	\$ 0.46	\$ 0.68	\$ -	\$ 1.14	R-30
Roof (Ceiling/Attic) Insulation	R-38 blown cellulose; 10-7/8" thick	sf	0.013	\$ 0.64	\$ 0.54	\$ 0.15	\$ 1.33	R-38
Roof (Ceiling/Attic) Insulation	R-38 Fiberglass Batt; 16" thick	sf	0.021	\$ 0.56	\$ 0.83	\$ -	\$ 1.39	R-38
Roof (Ceiling/Attic) Insulation	R-49 blown cellulose; X-x/X" thick	sf	0.015	\$ 0.78	\$ 0.68	\$ 0.15	\$ 1.61	R-49
Roof (Ceiling/Attic) Insulation	R-49 Fiberglass Batt; 20" thick	sf	0.026	\$ 0.71	\$ 1.04	\$ -	\$ 1.75	R-49
Air Infiltration Barrier	40 in. x 48 ft. Hydrotex Water-Resistant Barrier features advanced, 2-ply construction and helps protect against water intrusion and air infiltration from the outside while permitting breathability	sf	0.320	\$ 0.22	\$ 0.08	\$ -	\$ 0.30	N/A
Envelope sealant	1/4" x 1/2" caulking bead for air infiltration sealant	lf	0.028	\$ 0.06	\$ 0.97	\$ -	\$ 1.02	N/A
Foundation (basement wall) Insulation	R-10 insulation with protective coating	sf	0.011	\$ 1.14	\$ 0.38	\$ -	\$ 1.52	R-10
Foundation (basement wall) Insulation	R-15 insulation with protective coating	sf	0.011	\$ 1.64	\$ 0.38	\$ -	\$ 2.02	R-15

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
Foundation (basement wall) Insulation	R-20 insulation with protective coating	sf	0.011	\$ 2.17	\$ 0.38	\$ -	\$ 2.54	R-20
Foundation (basement wall) Insulation	R-5 insulation with protective coating	sf	0.011	\$ 0.57	\$ 0.34	\$ -	\$ 0.91	R-5
Insulation	16 in. x 25 ft. Staple Tab Insulation	sf	0.006	\$ 0.54	\$ 0.14	\$ -	\$ 0.69	R-3.7 to R-17 Radiant Barrier
Insulation	24 in. x 25 ft. Staple Tab Insulation	sf	0.006	\$ 0.53	\$ 0.14	\$ -	\$ 0.68	R-3.7 to R-17 Radiant Barrier
Insulation	EcoTouch R-13 Kraft 3-1/2 in. x 15 in. x 32 ft. Continuous Roll Insulation; 2x4 walls, basements	sf	0.007	\$ 0.28	\$ 0.21	\$ -	\$ 0.48	R-13 Fiberglass
Insulation	EcoTouch R-19 Kraft 6-1/4 in. x 15 in. x 39.2 ft. Continuous Roll Insulation; 2x6 walls	sf	0.006	\$ 0.36	\$ 0.20	\$ -	\$ 0.56	R-19 Fiberglass
Insulation	R-6.7 Unfaced 2 in. x 16 in. x 48 in. Multi Purpose Continuous Roll Insulation	sf	0.006	\$ 1.07	\$ 0.27	\$ -	\$ 1.34	R-6.7 Fiberglass
Sheathing Insulation	1" x 8' x 4' Expanded Polystyrene Insulated Sheathing	sf	0.005	\$ 0.49	\$ 0.15	\$ -	\$ 0.63	R-4
Sheathing Insulation	1/2" x 8' x 4' Expanded Polystyrene Insulated Sheathing	sf	0.005	\$ 0.34	\$ 0.15	\$ -	\$ 0.48	R-2
Sheathing Insulation	1-1/2" x 8' x 4' Expanded Polystyrene Insulated Sheathing	sf	0.006	\$ 0.71	\$ 0.18	\$ -	\$ 0.89	R-6
Sheathing Insulation	2" x 8' x 4' Expanded Polystyrene Insulated Sheathing	sf	0.006	\$ 0.95	\$ 0.18	\$ -	\$ 1.13	R-8
Sheathing Insulation	3/4" x 8' x 4' Expanded Polystyrene Insulated Sheathing	sf	0.005	\$ 0.39	\$ 0.15	\$ -	\$ 0.54	R-3
Sheathing Insulation	Foamular 1/2 in. x 48 in. x 96 in. Squared Edge Insulating Sheathing	sf	0.010	\$ 0.41	\$ 0.34	\$ -	\$ 0.75	R-5 per inch Foam
Sheathing Insulation	Foamular 3/4 in. x 48 in. x 96 in. Tongue and Groove Insulating Sheathing	sf	0.010	\$ 0.49	\$ 0.34	\$ -	\$ 0.84	R-5 per inch Foam
Sheathing Insulation	Foamular F-150 1 in. x 48 in. x 96 in. Tongue & Groove Foam	sf	0.010	\$ 0.45	\$ 0.34	\$ -	\$ 0.79	R-5 per inch Foam
Sheathing Insulation	Foamular F-150 2 in. x 48 in. x 96 in. Scored Squared Edge Foam	sf	0.011	\$ 1.01	\$ 0.41	\$ -	\$ 1.42	R-5 per inch Foam
Sheathing Insulation	Thermasheath 3 R-12.9 2 in. 4 ft. x 8 ft. Foam Insulating Sheathing	sf	0.008	\$ 1.10	\$ 0.40	\$ -	\$ 1.50	R-12.9 Foam
Sheathing Insulation	Thermasheath 3 R-12.9 2in x 4x8 Foam Sheathing	sf	0.008	\$ 0.66	\$ 0.40	\$ -	\$ 1.06	R-12.9 Foam
Slab Insulation	R-10 insulation with protective coating; extruded polystyrene 60 PSI compressive strength, 2" Thick	sf	0.006	\$ 1.43	\$ 0.19	\$ -	\$ 1.62	R-10
Slab Insulation	R-15 insulation with protective coating; extruded polystyrene 60 PSI compressive strength, 3" Thick	sf	0.008	\$ 2.28	\$ 0.24	\$ -	\$ 2.52	R-15
Slab Insulation	R-20 insulation with protective coating; extruded polystyrene 60 PSI compressive strength, 4" Thick	sf	0.008	\$ 2.85	\$ 0.24	\$ -	\$ 3.09	R-20
Slab Insulation	R-5 insulation with protective coating; extruded polystyrene 60 PSI compressive strength, 1" Thick	sf	0.005	\$ 0.74	\$ 0.16	\$ -	\$ 0.90	R-5
Walls (Mass) Insulation	R-10 insulation with protective coating; extruded polystyrene 25 PSI compressive strength, 2" Thick	sf	0.011	\$ 1.14	\$ 0.38	\$ -	\$ 1.52	R-10
Walls (Mass) Insulation	R-15 insulation with protective coating; extruded polystyrene 25 PSI compressive strength, 3" Thick	sf	0.011	\$ 1.64	\$ 0.38	\$ -	\$ 2.02	R-15
Walls (Mass) Insulation	R-20 insulation with protective coating; extruded polystyrene 25 PSI compressive strength, 4" Thick	sf	0.011	\$ 2.17	\$ 0.38	\$ -	\$ 2.54	R-20
Walls (Mass) Insulation	R-5 insulation with protective coating; extruded polystyrene 25 PSI compressive strength, 1" Thick	sf	0.010	\$ 0.57	\$ 0.34	\$ -	\$ 0.91	R-5
Walls (Mass) Insulation	Rigid Insulation - polystyrene 1.5" x 4' x 8'	sf	0.011	\$ 0.53	\$ 0.38	\$ -	\$ 0.91	R-9.1 @ 40deg

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
Walls (Mass) Insulation	Rigid Insulation - polystyrene 0.75" x 4' x 8'	sf	0.010	\$ 0.31	\$ 0.34	\$ -	\$ 0.66	R-5.9 @ 40deg
Walls (Mass) Insulation	Rigid Insulation - polystyrene 1.5" x 2' x 4'	sf	0.011	\$ 0.66	\$ 0.38	\$ -	\$ 1.04	R-9.1 @ 40deg
Walls (Mass) Insulation	Rigid Insulation - polystyrene 2"x 2'x 4'	sf	0.011	\$ 0.88	\$ 0.38	\$ -	\$ 1.26	R-11.1 @ 40deg
Walls (Mass) Insulation	Rigid Insulation - polystyrene 2"x 4'x 8'	sf	0.011	\$ 0.71	\$ 0.38	\$ -	\$ 1.09	R-11.1 @ 40deg
Walls (Wood Framed) Insulation	EcoTouch R-13 Kraft 3-1/2 in. x 15 in. x 93 in. Batts in Bag Insulation; 2x4 walls, basements	sf	0.006	\$ 0.43	\$ 0.21	\$ -	\$ 0.64	R-13 Batt
Walls (Wood Framed) Insulation	EcoTouch R-13 Kraft 3-1/2 in. x 23 in. x 93 in. Batts in Bag Insulation; 2x4 walls, basements	sf	0.006	\$ 0.46	\$ 0.21	\$ -	\$ 0.66	R-13 Batt
Walls (Wood Framed) Insulation	EcoTouch R-15 Kraft 3-1/2 in. x 15 in. x 93 in. Batts in Bag Insulation; 2x4 walls, basements	sf	0.005	\$ 0.78	\$ 0.21	\$ -	\$ 0.98	R-15 Batt
Walls (Wood Framed) Insulation	EcoTouch R-19 Kraft 6-1/4 in. x 15 in. x 93 in. Batts in Bag Insulation; 2x6 walls	sf	0.007	\$ 0.52	\$ 0.21	\$ -	\$ 0.73	R-19 Batt
Walls (Wood Framed) Insulation	EcoTouch R-19 Kraft 6-1/4 in. x 23 in. x 93 in. Batts in Bag Insulation; 2x6 walls	sf	0.005	\$ 0.53	\$ 0.21	\$ -	\$ 0.73	R-19 Batt
Walls (Wood Framed) Insulation	EcoTouch R-21 Kraft 5-1/2 in. x 15 in. x 93 in. Batts in Bag Insulation; 2x6 walls	sf	0.006	\$ 0.75	\$ 0.24	\$ -	\$ 0.99	R-21 Batt
Walls (Wood Framed) Insulation	EcoTouch R-21 Kraft 5-1/2 in. x 23 in. x 93 in. Batts in Bag Insulation; 2x6 walls	sf	0.005	\$ 0.76	\$ 0.24	\$ -	\$ 1.00	R-21 Batt
Walls (Wood Framed) Insulation	EcoTouch R-30 Kraft 9-1/2 in. x 16 in. x 48 in. Batts in Bag Insulation - in walls	sf	0.007	\$ 0.96	\$ 0.21	\$ -	\$ 1.16	R-30 Batt
Walls (Wood Framed) Insulation	R-11, 15" wide, Kraft faced fiberglass 3-1/2" thick	sf	0.006	\$ 0.32	\$ 0.21	\$ -	\$ 0.52	R-11
Walls (Wood Framed) Insulation	R-11, 23" wide, Kraft faced fiberglass 3-1/2" thick	sf	0.005	\$ 0.32	\$ 0.17	\$ -	\$ 0.49	R-11
Walls (Wood Framed) Insulation	R-13, 11" wide, Kraft faced fiberglass 3-1/2" thick	sf	0.006	\$ 0.31	\$ 0.21	\$ -	\$ 0.51	R-13
Walls (Wood Framed) Insulation	R-13, 15" wide, Kraft faced fiberglass 3-1/2" thick	sf	0.006	\$ 0.31	\$ 0.21	\$ -	\$ 0.51	R-13
Walls (Wood Framed) Insulation	R-13, 15" wide, Kraft faced fiberglass 3-1/2" thick	sf	0.007	\$ 0.47	\$ 0.24	\$ -	\$ 0.71	R-13
Walls (Wood Framed) Insulation	R-15, 15" wide, Kraft faced fiberglass 3-1/2" thick	sf	0.006	\$ 0.47	\$ 0.21	\$ -	\$ 0.67	R-15
Walls (Wood Framed) Insulation	R-19, 11" wide, Kraft faced fiberglass 6" thick	sf	0.006	\$ 0.42	\$ 0.21	\$ -	\$ 0.63	R-19
Walls (Wood Framed) Insulation	R-19, 15" wide, Kraft faced fiberglass 6" thick	sf	0.006	\$ 0.42	\$ 0.21	\$ -	\$ 0.63	R-19
Walls (Wood Framed) Insulation	R-19, 23" wide, Kraft faced fiberglass 6" thick	sf	0.005	\$ 0.42	\$ 0.17	\$ -	\$ 0.59	R-19
Walls (Wood Framed) Insulation	R-21, 11" wide, Foil faced fiberglass 6" thick	sf	0.007	\$ 0.94	\$ 0.24	\$ -	\$ 1.18	R-21
Skylights	21 in. x 26-7/8 in. Fixed Deck-Mounted Skylight with Tempered Glazing, LoE3, Argon	ea	0.738	\$ 190.52	\$ 25.49	\$ -	\$ 216.01	U-0.45
Skylights	21 in. x 45-3/4 in. Fixed Deck-Mounted Skylight with Laminated Glazing, LoE3, Argon	ea	1.845	\$ 273.80	\$ 63.74	\$ -	\$ 337.53	U-0.44
Skylights	22 in. x 30 in. Fixed Pan-Flushed Skylight with Tempered Glazing, Low-E	ea	1.230	\$ 277.45	\$ 42.48	\$ -	\$ 319.93	U-0.44

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
Skylights	22-1/2 in. x 22-1/2 in. Pan-Flashed Skylight with Laminated Glazing, LoE3, Argon	ea	0.738	\$ 287.49	\$ 25.49	\$ -	\$ 312.98	U-0.43
Skylights	22-1/2 in. x 45-3/4 in. Fixed Deck-Mounted Truss Series Skylight with Laminated Glazing, LoE3, Argon	ea	1.845	\$ 301.29	\$ 63.74	\$ -	\$ 365.03	U-0.44
Skylights	22-1/2 in. x 45-3/4 in. Fixed Deck-Mounted Truss Series Skylight with Tempered Glazing, LoE3, Argon	ea	1.845	\$ 252.52	\$ 63.74	\$ -	\$ 316.26	U-0.45
Windows	24"x42" opening; composite casement window; Low-E II, Clear, Argon	ea	1.139	\$ 371.62	\$ 39.36	\$ -	\$ 410.98	U-0.31
Windows	24"x42" opening; fiberglass casement window; Low-E, Clear	ea	1.139	\$ 336.54	\$ 39.36	\$ -	\$ 375.90	U-0.34 / SHGC-0.25 - 0.28
Windows	24"x42" opening; premium vinyl casement window; Low-E 366, Clear	ea	0.842	\$ 257.81	\$ 29.09	\$ -	\$ 286.90	U-0.30 / SHGC-0.18
Windows	24"x42" opening; premium vinyl casement window; Low-E, Clear	ea	0.842	\$ 247.74	\$ 29.09	\$ -	\$ 276.83	U-0.42 / SHGC-0.27
Windows	24"x42" opening; premium vinyl casement window; Low-E, Clear	ea	0.842	\$ 259.25	\$ 29.09	\$ -	\$ 288.34	U-0.27 / SHGC-0.18
Windows	24"x42" opening; vinyl casement window; 3D North; SunCoat Low-E, Clear, EdgeGard, Argon	ea	1.205	\$ 289.21	\$ 41.64	\$ -	\$ 330.85	U-0.29 / SHGC-0.25
Windows	24"x42" opening; vinyl casement window; Cardinal 272 Low-E, Clear	ea	1.139	\$ 287.20	\$ 39.36	\$ -	\$ 326.56	U-0.29 / SHGC-0.28
Windows	24"x42" opening; vinyl casement window; Low-E, Clear	ea	1.205	\$ 256.68	\$ 41.64	\$ -	\$ 298.32	U-0.32 / SHGC-0.26
Windows	24"x42" opening; wood/clad casement window; Low-E II, Clear, Argon	ea	1.139	\$ 536.58	\$ 39.36	\$ -	\$ 575.94	U-0.30
Windows	30"x48" opening; composite casement window; Low-E II, Clear, Argon	ea	1.205	\$ 415.23	\$ 41.64	\$ -	\$ 456.87	U-0.31
Windows	30"x48" opening; fiberglass casement window; Low-E, Clear	ea	1.205	\$ 387.88	\$ 41.64	\$ -	\$ 429.52	U-0.34 / SHGC-0.25 - 0.28
Windows	30"x48" opening; vinyl casement window; 3D North; SunCoat Low-E, Clear, EdgeGard, Argon	ea	1.271	\$ 316.52	\$ 43.92	\$ -	\$ 360.44	U-0.29 / SHGC-0.25
Windows	30"x48" opening; vinyl casement window; Cardinal 272 Low-E, Clear	ea	1.205	\$ 337.05	\$ 41.64	\$ -	\$ 378.69	U-0.29 / SHGC-0.28
Windows	30"x48" opening; vinyl casement window; Low-E, Clear	ea	1.271	\$ 280.64	\$ 43.92	\$ -	\$ 324.56	U-0.32 / SHGC-0.26
Windows	30"x48" opening; wood/clad casement window; Low-E II, Clear, Argon	ea	1.205	\$ 648.44	\$ 41.64	\$ -	\$ 690.08	U-0.30
Windows	36"x60" opening; composite casement window; Low-E II, Clear, Argon	ea	1.338	\$ 526.14	\$ 46.20	\$ -	\$ 572.35	U-0.31
Windows	36"x60" opening; fiberglass casement window; Low-E, Clear	ea	1.338	\$ 446.06	\$ 46.20	\$ -	\$ 492.26	U-0.34 / SHGC-0.25 - 0.28
Windows	36"x60" opening; vinyl casement window; 3D North; SunCoat Low-E, Clear, EdgeGard, Argon	ea	1.271	\$ 373.57	\$ 43.92	\$ -	\$ 417.49	U-0.29 / SHGC-0.25
Windows	36"x60" opening; vinyl casement window; Cardinal 272 Low-E, Clear	ea	1.338	\$ 410.75	\$ 46.20	\$ -	\$ 456.95	U-0.29 / SHGC-0.28
Windows	36"x60" opening; vinyl casement window; Low-E, Clear	ea	1.271	\$ 330.84	\$ 43.92	\$ -	\$ 374.76	U-0.32 / SHGC-0.26

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
Windows	36"x60" opening; wood/clad casement window; Low-E II, Clear, Argon	ea	1.338	\$ 803.92	\$ 46.20	\$ -	\$ 850.12	U-0.30
Windows	48"x48" opening; composite double casement window; Low-E II, Clear, Argon	ea	1.420	\$ 781.16	\$ 49.06	\$ -	\$ 830.22	U-0.31
Windows	48"x48" opening; fiberglass double casement window; Low-E, Clear	ea	1.420	\$ 816.82	\$ 49.06	\$ -	\$ 865.88	U-0.34 / SHGC-0.25 - 0.28
Windows	48"x48" opening; premium vinyl double casement window; Low-E 366, Clear	ea	1.338	\$ 575.01	\$ 46.20	\$ -	\$ 621.21	U-0.30 / SHGC-0.18
Windows	48"x48" opening; premium vinyl double casement window; Low-E 366, Energy Saver Plus, Clear	ea	1.338	\$ 578.29	\$ 46.20	\$ -	\$ 624.49	U-0.27 / SHGC-0.18
Windows	48"x48" opening; premium vinyl double casement window; Low-E, Clear	ea	1.338	\$ 551.93	\$ 46.20	\$ -	\$ 598.13	U-0.42 / SHGC-0.27
Windows	48"x48" opening; vinyl double casement window; 3D North; SunCoat Low-E, Clear, EdgeGard, Argon	ea	1.338	\$ 645.72	\$ 46.20	\$ -	\$ 691.93	U-0.29 / SHGC-0.25
Windows	48"x48" opening; vinyl double casement window; Cardinal 272 Low-E, Clear	ea	1.420	\$ 593.91	\$ 49.06	\$ -	\$ 642.96	U-0.29 / SHGC-0.28
Windows	48"x48" opening; vinyl double casement window; Low-E, Clear	ea	1.338	\$ 576.11	\$ 46.20	\$ -	\$ 622.32	U-0.32 / SHGC-0.26
Windows	48"x48" opening; wood/clad double casement window; Low-E II, Clear, Argon	ea	1.420	\$ 1,183.13	\$ 49.06	\$ -	\$ 1,232.18	U-0.30
Windows	60"x48" opening; composite double casement window; Low-E II, Clear, Argon	ea	2.064	\$ 868.39	\$ 71.30	\$ -	\$ 939.69	U-0.31
Windows	60"x48" opening; fiberglass double casement window; Low-E, Clear	ea	2.064	\$ 873.87	\$ 71.30	\$ -	\$ 945.17	U-0.34 / SHGC-0.25 - 0.28
Windows	60"x48" opening; premium vinyl double casement window; Low-E 366, Clear	ea	1.519	\$ 622.90	\$ 52.48	\$ -	\$ 675.37	U-0.30 / SHGC-0.18
Windows	60"x48" opening; premium vinyl double casement window; Low-E 366, Energy Saver Plus, Clear	ea	1.519	\$ 627.00	\$ 52.48	\$ -	\$ 679.48	U-0.27 / SHGC-0.18
Windows	60"x48" opening; premium vinyl double casement window; Low-E, Clear	ea	1.519	\$ 593.92	\$ 52.48	\$ -	\$ 646.40	U-0.42 / SHGC-0.27
Windows	60"x48" opening; vinyl double casement window; 3D North; SunCoat Low-E, Clear, EdgeGard, Argon	ea	1.519	\$ 685.22	\$ 52.48	\$ -	\$ 737.70	U-0.29 / SHGC-0.25
Windows	60"x48" opening; vinyl double casement window; Cardinal 272 Low-E, Clear	ea	2.064	\$ 639.43	\$ 71.30	\$ -	\$ 710.73	U-0.29 / SHGC-0.28
Windows	60"x48" opening; vinyl double casement window; Low-E, Clear	ea	1.519	\$ 610.34	\$ 52.48	\$ -	\$ 662.81	U-0.32 / SHGC-0.26
Windows	60"x48" opening; wood/clad double casement window; Low-E II, Clear, Argon	ea	2.064	\$ 1,308.25	\$ 71.30	\$ -	\$ 1,379.56	U-0.30
Windows	72"x48" opening; composite double casement window; Low-E II, Clear, Argon	ea	2.064	\$ 974.55	\$ 71.30	\$ -	\$ 1,045.85	U-0.31
Windows	72"x48" opening; fiberglass double casement window; Low-E, Clear	ea	2.064	\$ 901.24	\$ 71.30	\$ -	\$ 972.55	U-0.34 / SHGC-0.25 - 0.28
Windows	72"x48" opening; vinyl double casement window; 3D North; SunCoat Low-E, Clear, EdgeGard, Argon	ea	2.064	\$ 718.86	\$ 71.30	\$ -	\$ 790.16	U-0.29 / SHGC-0.25
Windows	72"x48" opening; vinyl double casement window; Cardinal 272 Low-E, Clear	ea	2.064	\$ 684.95	\$ 71.30	\$ -	\$ 756.25	U-0.29 / SHGC-0.28

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
Windows	72"x48" opening; vinyl double casement window; Low-E, Clear	ea	2.064	\$ 640.00	\$ 71.30	\$ -	\$ 711.30	U-0.32 / SHGC-0.26
Windows	72"x48" opening; wood/clad double casement window; Low-E II, Clear, Argon	ea	2.064	\$ 1,359.45	\$ 71.30	\$ -	\$ 1,430.75	U-0.30
Windows	72"x60" opening; composite double casement window; Low-E II, Clear, Argon	ea	2.279	\$ 1,090.21	\$ 78.72	\$ -	\$ 1,168.93	U-0.31
Windows	72"x60" opening; fiberglass double casement window; Low-E, Clear	ea	2.279	\$ 986.81	\$ 78.72	\$ -	\$ 1,065.52	U-0.34 / SHGC-0.25 - 0.28
Windows	72"x60" opening; premium vinyl double casement window; Low-E 366, Clear	ea	2.279	\$ 724.13	\$ 78.72	\$ -	\$ 802.85	U-0.30 / SHGC-0.18
Windows	72"x60" opening; premium vinyl double casement window; Low-E, Clear	ea	2.279	\$ 680.44	\$ 78.72	\$ -	\$ 759.16	U-0.42 / SHGC-0.27
Windows	72"x60" opening; vinyl double casement window; 3D North; SunCoat Low-E, Clear, EdgeGard, Argon	ea	2.279	\$ 799.83	\$ 78.72	\$ -	\$ 878.54	U-0.29 / SHGC-0.25
Windows	72"x60" opening; vinyl double casement window; Cardinal 272 Low-E, Clear	ea	2.279	\$ 780.32	\$ 78.72	\$ -	\$ 859.03	U-0.29 / SHGC-0.28
Windows	72"x60" opening; vinyl double casement window; Low-E, Clear	ea	2.279	\$ 711.87	\$ 78.72	\$ -	\$ 790.59	U-0.32 / SHGC-0.26
Windows	72"x60" opening; wood/clad double casement window; Low-E II, Clear, Argon	ea	2.279	\$ 1,619.22	\$ 78.72	\$ -	\$ 1,697.93	U-0.30
Doors	36"x80" opening; hinged fiberglass stile & rail door, single lite, Low-E, Clear	ea	1.519	\$ 1,651.90	\$ 52.48	\$ -	\$ 1,704.38	U-0.37 / SHGC-0.22
Doors	39"x83" opening; hinged wood stile & rail door, single lite; Cardinal 272 Low-E, clear	ea	1.519	\$ 1,841.83	\$ 52.48	\$ -	\$ 1,894.30	U-0.30
Doors	72"x80" opening; hinged fiberglass stile & rail door, single lite, Low-E, Clear	ea	3.038	\$ 2,382.02	\$ 104.96	\$ -	\$ 2,486.98	U-0.37 / SHGC-0.22
Doors	72"x80" opening; premium vinyl sliding stile & rail glass door; Low-E 366, Clear	ea	5.680	\$ 820.04	\$ 196.22	\$ -	\$ 1,016.26	U-0.30 / SHGC-0.22
Doors	72"x80" opening; premium vinyl sliding stile & rail glass door; Low-E 366, Energy Saver Plus, Clear	ea	5.680	\$ 828.39	\$ 196.22	\$ -	\$ 1,024.61	U-0.27 / SHGC-0.22
Doors	72"x80" opening; premium vinyl sliding stile & rail glass door; Low-E, Clear	ea	5.680	\$ 761.29	\$ 196.22	\$ -	\$ 957.51	U-0.42 / SHGC-0.33
Doors	72"x80" opening; vinyl sliding glass door; 3D North; SunCoat Low-E, Clear, EdgeGard, Argon	ea	5.680	\$ 812.51	\$ 196.22	\$ -	\$ 1,008.73	U-0.30 / SHGC-0.29
Doors	72"x82" opening; sliding fiberglass stile & rail door, single lite, Low-E, Clear	ea	3.038	\$ 1,990.72	\$ 104.96	\$ -	\$ 2,095.68	U-0.37 / SHGC-0.22
Doors	72"x82" opening; vinyl sliding glass door, Low-E, Clear	ea	5.680	\$ 749.52	\$ 196.22	\$ -	\$ 945.74	U-0.34 / SHGC-0.29
Doors	72"x83" opening; hinged wood stile & rail, french doors; single lite, Cardinal 272 Low-E, clear	ea	3.038	\$ 3,443.87	\$ 104.96	\$ -	\$ 3,548.83	U-0.24
Doors	72"x83" opening; sliding wood stile & rail door; single lite, Cardinal 272 Low-E, clear	ea	5.680	\$ 2,570.27	\$ 196.22	\$ -	\$ 2,766.49	U-0.41
Door Insulation	Garage Door Insulation Kit, 54" x 2 3/8" x 22"	ea	0.196	\$ 79.81	\$ 8.94	\$ -	\$ 88.76	N/A
Renewables (Solar)	Refer to Subtask 2 for Solar cost data collection	N/A	N/A					N/A
Renewables (Ground Source Heat Pumps)	Refer to Subtask 2 for Ground Source Heat Pump cost data collection	N/A	N/A					N/A

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
Electric Water Heaters	20 gal. 6 Year 2000W 120V Electric Point-of-Use Water Heater	ea	3.636	\$ 318.29	\$ 143.74	\$ -	\$ 462.03	N/A
Electric Water Heaters	30 gal. Short 6 Year 4500 Watt Double Element 240 Volts Electric Water Heater	ea	3.636	\$ 295.47	\$ 147.17	\$ -	\$ 442.64	EF=0.93
Electric Water Heaters	38 gal. Short 6 Year 4500W DE 240V Electric Water Heater	ea	4.000	\$ 339.96	\$ 157.43	\$ -	\$ 497.40	EF=0.92
Electric Water Heaters	40 gal. Medium 12 Year 4500 Watt Double Element 240 Volts Electric Water Heater	ea	4.000	\$ 452.90	\$ 162.00	\$ -	\$ 614.90	EF=0.92
Electric Water Heaters	40 gal. Medium 6 Year 4500 Watt Double Element 240 Volts Electric Water Heater	ea	4.000	\$ 249.84	\$ 162.00	\$ -	\$ 411.83	EF=0.92
Electric Water Heaters	40 gal. Medium 9 Year 4500 Watt Double Element 240 Volts Electric Water Heater	ea	4.000	\$ 341.10	\$ 162.00	\$ -	\$ 503.10	EF=0.92
Electric Water Heaters	40 gal. Tall 6 Year 4500 Watt Double Element 240 Volts Side Connect Mobile Home Electric Water Heater	ea	4.000	\$ 374.19	\$ 162.00	\$ -	\$ 536.18	EF=0.92
Electric Water Heaters	50 gal. 36,000 BTU Liquid Propane Water Heater	ea	4.000	\$ 613.76	\$ 179.11	\$ -	\$ 792.87	EF=0.58
Electric Water Heaters	50 gal. Medium 12 Year 4500 Watt Double Element 240 Volts Electric Water Heater	ea	4.000	\$ 489.41	\$ 162.00	\$ -	\$ 651.41	EF=0.90
Electric Water Heaters	50 gal. Medium 6 Year 4500 Watt Double Element 240 Volts Electric Water Heater	ea	4.000	\$ 318.29	\$ 162.00	\$ -	\$ 480.28	EF=0.90
Electric Water Heaters	50 gal. Medium 9 Year 4500 Watt Double Element 240 Volts Electric Water Heater	ea	4.000	\$ 375.33	\$ 162.00	\$ -	\$ 537.32	EF=0.90
Electric Water Heaters	50 gal. Tall 12 Year 5500 Watt Double Element 240 Volts Electric Water Heater	ea	4.000	\$ 590.94	\$ 162.00	\$ -	\$ 752.94	EF=0.95
Electric Water Heaters	50 gal. Tall 6 Year High Efficiency 4500 Watt Double Element 240 Volts Electric Water Heater	ea	4.000	\$ 406.13	\$ 162.00	\$ -	\$ 568.13	EF=0.95
Electric Water Heaters	65 gal. Tall 9 Year 4500 Watts Double Element 240 Volts Electric Water Heater	ea	4.444	\$ 612.62	\$ 179.11	\$ -	\$ 791.73	EF=0.89
Electric Water Heaters	80 gal. Tall 12 Year 5500 Watt Double Element 240 Volts Electric Water Heater	ea	5.000	\$ 843.06	\$ 201.92	\$ -	\$ 1,044.99	EF=0.92
Electric Water Heaters	80 gal. Tall 6 Year 4500 Watt Double Element 240 Volts Electric Water Heater	ea	5.000	\$ 613.76	\$ 201.92	\$ -	\$ 815.68	EF=0.86
Hot Water Distribution Insulation	Rubber tubing, flexible closed cell foam - 1/2" wall (insulation), 1/2" pipe size	lf	0.089	\$ 1.13	\$ 4.30	\$ -	\$ 5.43	R-3
Hot Water Distribution Insulation	Rubber tubing, flexible closed cell foam - 1/2" wall (insulation), 3/4" pipe size	lf	0.090	\$ 1.27	\$ 4.35	\$ -	\$ 5.61	R-3
Hot Water Distribution Insulation	Rubber tubing, flexible closed cell foam - 1/2" wall (insulation), 1" pipe size	lf	0.090	\$ 1.45	\$ 4.35	\$ -	\$ 5.80	R-3
Hot Water Distribution Insulation	Rubber tubing, flexible closed cell foam - 1/2" wall (insulation), 1-1/2" pipe size	lf	0.091	\$ 1.84	\$ 4.40	\$ -	\$ 6.23	R-3
Hot Water Distribution Insulation	Rubber tubing, flexible closed cell foam - 1/2" wall (insulation), 2" pipe size	lf	0.092	\$ 2.28	\$ 4.44	\$ -	\$ 6.72	R-3
Hot Water Distribution Insulation	Rubber tubing, flexible closed cell foam - 3/4" wall (insulation), 1/2" pipe size	lf	0.089	\$ 1.71	\$ 4.30	\$ -	\$ 6.00	R-5
Hot Water Distribution Insulation	Rubber tubing, flexible closed cell foam - 3/4" wall (insulation), 3/4" pipe size	lf	0.090	\$ 2.04	\$ 4.35	\$ -	\$ 6.38	R-5
Hot Water Distribution Insulation	Rubber tubing, flexible closed cell foam - 3/4" wall (insulation), 1" pipe size	lf	0.090	\$ 2.10	\$ 4.35	\$ -	\$ 6.45	R-5

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
Hot Water Distribution Insulation	Rubber tubing, flexible closed cell foam - 3/4" wall (insulation), 2" pipe size	lf	0.091	\$ 4.79	\$ 4.40	\$ -	\$ 9.18	R-4
Hot Water Distribution Insulation	Fiberglass, with all service jacket - 1" wall (insulation), 1/2" pipe size	lf	0.064	\$ 1.32	\$ 3.09	\$ -	\$ 4.41	R-4
Hot Water Distribution Insulation	Fiberglass, with all service jacket - 1" wall (insulation), 3/4" pipe size	lf	0.067	\$ 1.73	\$ 3.24	\$ -	\$ 4.97	R-4
Hot Water Distribution Insulation	Fiberglass, with all service jacket - 1" wall (insulation), 1" pipe size	lf	0.070	\$ 1.91	\$ 3.38	\$ -	\$ 5.30	R-4
Hot Water Distribution Insulation	Fiberglass, with all service jacket - 1" wall (insulation), 2" pipe size	lf	0.073	\$ 2.18	\$ 3.53	\$ -	\$ 5.70	R-4
Gas Water Heaters	40 gal. Short 9 Year 40,000 BTU Natural Gas Water Heater	ea	4.211	\$ 476.86	\$ 173.40	\$ -	\$ 650.27	EF=0.59
Gas Water Heaters	40 gal. Tall 12 Year 40,000 BTU Natural Gas Water Heater	ea	4.211	\$ 613.76	\$ 173.40	\$ -	\$ 787.16	EF=0.62
Gas Water Heaters	40 gal. Tall 6 Year 36,000 BTU Natural Gas Water Heater	ea	4.211	\$ 443.78	\$ 173.40	\$ -	\$ 617.18	EF=0.59
Gas Water Heaters	40 gal. Tall 9 Year 38,000 BTU Natural Gas Water Heater	ea	4.211	\$ 455.19	\$ 173.40	\$ -	\$ 628.59	EF=0.59
Gas Water Heaters	50 gal. Tall 12 Year 40,000 BTU Natural Gas Water Heater	ea	4.444	\$ 647.98	\$ 184.81	\$ -	\$ 832.80	EF=0.62
Gas Water Heaters	50 gal. Tall 6 Year 38,000 BTU Natural Gas Water Heater	ea	4.444	\$ 443.78	\$ 184.81	\$ -	\$ 628.59	EF=0.58
Gas Water Heaters	50 gal. Tall 9 Year 38,000 BTU Natural Gas Water Heater	ea	4.444	\$ 499.68	\$ 184.81	\$ -	\$ 684.49	EF=0.58
Duct Insulation	Blanket type, fiberglass, flexible; ½" thick, 2lb density	sf	0.045	\$ 0.23	\$ 2.28	\$ -	\$ 2.51	N/A
Duct Insulation	Blanket type, fiberglass, flexible; 1" thick, 1½lb density	sf	0.050	\$ 0.24	\$ 2.45	\$ -	\$ 2.69	N/A
Duct Insulation	Blanket type, fiberglass, flexible; 1½" thick, 1½lb density	sf	0.053	\$ 0.31	\$ 2.57	\$ -	\$ 2.87	N/A
Duct Insulation	Blanket type, fiberglass, flexible; 2" thick, 1½lb density	sf	0.055	\$ 0.38	\$ 2.66	\$ -	\$ 3.03	N/A
Duct sealing	Mastic sealer with membrane; up to 23" dia., oval or round metal ductwork joints	ea	0.250	\$ 2.85	\$ 15.12	\$ -	\$ 17.97	N/A
HVAC Systems (Standard Efficiency)	Provide and install an Aprilaire Electronic and Media Model #5000	ea	0.500	\$ 761.49	\$ 26.81	\$ -	\$ 788.30	N/A
HVAC Systems (Standard Efficiency)	Provide and install an Aprilaire MERV 10 Filter model #2210/2410	ea	0.500	\$ 253.83	\$ 26.81	\$ -	\$ 280.64	N/A
HVAC Systems (Standard Efficiency)	Provide and install an Aprilaire MERV 13 Filter Model #4210/4410	ea	0.500	\$ 355.36	\$ 26.81	\$ -	\$ 382.17	N/A
HVAC Systems (Standard Efficiency)	Provide Pressure Test of ductwork system to determine amount of leakage	ea	8.311	\$ -	\$ 355.36	\$ -	\$ 355.36	N/A
Mechanical Ventilation	Bath exhaust; w/ grille and backdraft damper; 110cfm	ea	0.909	\$ 90.12	\$ 49.06	\$ -	\$ 139.18	N/A
Mechanical Ventilation	Bath exhaust; w/ grille and backdraft damper; 180cfm	ea	0.909	\$ 173.40	\$ 49.06	\$ -	\$ 222.46	N/A
Mechanical Ventilation	Bath exhaust; w/ grille and backdraft damper; 210cfm	ea	0.909	\$ 232.73	\$ 49.06	\$ -	\$ 281.78	N/A
Mechanical Ventilation	Bath exhaust; w/ grille and backdraft damper; 260cfm	ea	0.909	\$ 260.11	\$ 49.06	\$ -	\$ 309.16	N/A
Mechanical Ventilation	Bath exhaust; w/ grille and backdraft damper; 300cfm	ea	0.909	\$ 353.65	\$ 49.06	\$ -	\$ 402.71	N/A
Mechanical Ventilation	Bath exhaust; w/ grille and backdraft damper; 50cfm	ea	0.833	\$ 54.19	\$ 45.06	\$ -	\$ 99.25	N/A
Mechanical Ventilation	Kitchen exhaust; w/ grille and backdraft damper; 160cfm	ea	0.909	\$ 99.82	\$ 49.06	\$ -	\$ 148.88	N/A
Mechanical Ventilation	Kitchen exhaust; w/ grille and backdraft damper; 180cfm	ea	1.000	\$ 84.99	\$ 53.62	\$ -	\$ 138.61	N/A
Mechanical Ventilation	Kitchen exhaust; w/ grille and backdraft damper; 270cfm	ea	1.111	\$ 152.87	\$ 59.89	\$ -	\$ 212.76	N/A
Mechanical Ventilation	Kitchen exhaust; w/ grille and backdraft damper; 350cfm	ea	1.250	\$ 119.79	\$ 67.31	\$ -	\$ 187.09	N/A
Heat pump water heaters	Accelera 300 Heat Pump; 80 Gallon	ea	5.000	\$ 2,992.30	\$ 201.92	\$ -	\$ 3,194.23	EF=2.5
Heat pump water heaters	Electric Heat Pump Heater; 60 gallon	ea	4.444	\$ 1,885.80	\$ 174.54	\$ -	\$ 2,060.35	EF=2.4
Heat pump water heaters	Electric Heat Pump Heater; 80 gallon	ea	5.000	\$ 2,322.22	\$ 201.92	\$ -	\$ 2,524.15	EF=2.3
Heat pump water heaters	Electric Heat Pump Water Heater; 40 gallon	ea	4.000	\$ 1,846.41	\$ 162.00	\$ -	\$ 2,008.41	N/A
Heat pump water heaters	Electric Heat Pump Water Heater; 40 gallon	ea	4.000	\$ 1,594.86	\$ 162.00	\$ -	\$ 1,756.86	TBD

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
Heat pump water heaters	Electric Heat Pump Water Heater; 50 gallon	ea	4.000	\$ 1,880.64	\$ 162.00	\$ -	\$ 2,042.63	EF=2.0
Heat pump water heaters	Electric Heat Pump Water Heater; 50 gallon	ea	4.000	\$ 1,641.63	\$ 162.00	\$ -	\$ 1,803.63	EF=2.0
HVAC Systems	3-Ton Air Conditioning System with R410A Earth Friendly Refrigerant	ea	16.000	\$ 2,880.54	\$ 857.89	\$ -	\$ 3,738.43	13.0 SEER, 11.0 EER, 76 Decibel System
HVAC Systems	3-Ton Air Conditioning System with R410A Earth Friendly Refrigerant	ea	16.000	\$ 3,054.16	\$ 857.89	\$ -	\$ 3,912.05	13.5 SEER, 11.5 EER, 76 Decibel System
HVAC Systems	3-Ton Air Conditioning System with R410A Earth Friendly Refrigerant	ea	16.000	\$ 3,404.45	\$ 857.89	\$ -	\$ 4,262.34	14.0 SEER, 12.0 EER, 70 Decibel System
HVAC Systems (Standard Efficiency)	Provide and install a Honeywell VisionPro 8000 Touch Screen Thermostat	ea	0.250	\$ 101.53	\$ 13.40	\$ -	\$ 114.94	N/A
High Efficacy Lighting	15 Watt CFL T3 Spiral Lamp 2700K Med. Base	ea		\$ 2.73	\$ -	\$ -	\$ 2.73	15 Watt
High Efficacy Lighting	11 Watt CFL Spiral Lamp 2700K Med. Base	ea		\$ 2.73	\$ -	\$ -	\$ 2.73	11 Watt
High Efficacy Lighting	13 Watt CFL Spiral Lamp 2700K Med. Base	ea		\$ 2.73	\$ -	\$ -	\$ 2.73	13 Watt
High Efficacy Lighting	14 Watt CFL Spiral Lamp 2700K Med. Base	ea		\$ 2.73	\$ -	\$ -	\$ 2.73	14 Watt
High Efficacy Lighting	14 Watt CFL Spiral Lamp 4100K Med. Base	ea		\$ 2.73	\$ -	\$ -	\$ 2.73	14 Watt
High Efficacy Lighting	14 Watt CFL Spiral Lamp 5000K Med. Base	ea		\$ 2.73	\$ -	\$ -	\$ 2.73	14 Watt
High Efficacy Lighting	14 Watt CFL Spiral Lamp 6500K Med. Base	ea		\$ 2.73	\$ -	\$ -	\$ 2.73	14 Watt
High Efficacy Lighting	19 Watt CFL Spiral Lamp 2700K Med. Base	ea		\$ 2.73	\$ -	\$ -	\$ 2.73	19 Watt
High Efficacy Lighting	19 Watt CFL Spiral Lamp 4100K Med. Base	ea		\$ 2.73	\$ -	\$ -	\$ 2.73	19 Watt
High Efficacy Lighting	19 Watt CFL Spiral Lamp 5000K Med. Base	ea		\$ 2.73	\$ -	\$ -	\$ 2.73	19 Watt
High Efficacy Lighting	19 Watt CFL Spiral Lamp 6500K Med. Base	ea		\$ 2.73	\$ -	\$ -	\$ 2.73	19 Watt
High Efficacy Lighting	5 Watt CFL Spiral Lamp 2700K Cand. Base	ea		\$ 2.73	\$ -	\$ -	\$ 2.73	5 Watt
High Efficacy Lighting	9 Watt CFL Spiral Lamp 2700K Med. Base	ea		\$ 2.73	\$ -	\$ -	\$ 2.73	9 Watt
High Efficacy Lighting	9 Watt CFL Spiral Lamp 4100K Med. Base	ea		\$ 2.73	\$ -	\$ -	\$ 2.73	9 Watt
High Efficacy Lighting	9 Watt CFL Spiral Lamp 5000K Med. Base	ea		\$ 2.73	\$ -	\$ -	\$ 2.73	9 Watt
High Efficacy Lighting	23 Watt CFL Spiral Lamp 2700K Med. Base	ea		\$ 3.87	\$ -	\$ -	\$ 3.87	23 Watt
High Efficacy Lighting	23 Watt CFL Spiral Lamp 4100K Med. Base	ea		\$ 3.87	\$ -	\$ -	\$ 3.87	23 Watt
High Efficacy Lighting	23 Watt CFL Spiral Lamp 6500K Med. Base	ea		\$ 3.87	\$ -	\$ -	\$ 3.87	23 Watt
High Efficacy Lighting	26 Watt CFL Spiral Lamp 2700K Med. Base	ea		\$ 3.87	\$ -	\$ -	\$ 3.87	26 Watt
High Efficacy Lighting	26 Watt CFL Spiral Lamp 4100K Med. Base	ea		\$ 3.87	\$ -	\$ -	\$ 3.87	26 Watt
High Efficacy Lighting	26 Watt CFL Spiral Lamp 5000K Med. Base	ea		\$ 3.87	\$ -	\$ -	\$ 3.87	26 Watt
High Efficacy Lighting	26 Watt CFL Spiral Lamp 6500K Med. Base	ea		\$ 3.87	\$ -	\$ -	\$ 3.87	26 Watt
High Efficacy Lighting	12 Watt CFL Top Spiral Lamp 2700K Med. Base	ea		\$ 3.87	\$ -	\$ -	\$ 3.87	12 Watt
High Efficacy Lighting	12 Watt CFL Top Spiral Lamp 4100K Med. Base	ea		\$ 3.87	\$ -	\$ -	\$ 3.87	12 Watt
High Efficacy Lighting	12 Watt CFL Top Spiral Lamp 5000K Med. Base	ea		\$ 3.87	\$ -	\$ -	\$ 3.87	12 Watt
High Efficacy Lighting	15 Watt CFL Top Spiral Lamp 2700K Med. Base	ea		\$ 3.87	\$ -	\$ -	\$ 3.87	15 Watt
High Efficacy Lighting	20 Watt CFL Top Spiral Lamp 2700K Med. Base	ea		\$ 4.55	\$ -	\$ -	\$ 4.55	20 Watt
High Efficacy Lighting	30 Watt CFL T3 Spiral Lamp 2700K Med. Base	ea		\$ 6.03	\$ -	\$ -	\$ 6.03	30 Watt
High Efficacy Lighting	30 Watt CFL T3 Spiral Lamp 4100K Med. Base	ea		\$ 6.03	\$ -	\$ -	\$ 6.03	30 Watt
High Efficacy Lighting	30 Watt CFL T3 Spiral Lamp 5000K Med. Base	ea		\$ 6.03	\$ -	\$ -	\$ 6.03	30 Watt
High Efficacy Lighting	30 Watt CFL T3 Spiral Lamp 6400K Med. Base	ea		\$ 6.03	\$ -	\$ -	\$ 6.03	30 Watt
High Efficacy Lighting	14 Watt CFL Spring Lamp HPF 2700K Medium Base	ea		\$ 6.83	\$ -	\$ -	\$ 6.83	14 Watt
High Efficacy Lighting	14 Watt CFL Spring Lamp HPF 3500K Medium Base	ea		\$ 6.83	\$ -	\$ -	\$ 6.83	14 Watt

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
High Efficacy Lighting	14 Watt CFL Spring Lamp HPF 4100K Medium Base	ea		\$ 6.83	\$ -	\$ -	\$ 6.83	14 Watt
High Efficacy Lighting	14 Watt CFL Spring Lamp HPF 5100K Medium Base	ea		\$ 6.83	\$ -	\$ -	\$ 6.83	14 Watt
High Efficacy Lighting	9 Watt CFL Spring Lamp HPF 2700K Medium Base	ea		\$ 6.83	\$ -	\$ -	\$ 6.83	9 Watt
High Efficacy Lighting	30 Watt CFL Top Spiral Lamp 5000K Med. Base	ea		\$ 7.18	\$ -	\$ -	\$ 7.18	30 Watt
High Efficacy Lighting	20 Watt CFL Spring Lamp HPF 2700K Medium Base	ea		\$ 7.40	\$ -	\$ -	\$ 7.40	20 Watt
High Efficacy Lighting	20 Watt CFL Spring Lamp HPF 3500K Medium Base	ea		\$ 7.40	\$ -	\$ -	\$ 7.40	20 Watt
High Efficacy Lighting	20 Watt CFL Spring Lamp HPF 4100K Medium Base	ea		\$ 7.40	\$ -	\$ -	\$ 7.40	20 Watt
High Efficacy Lighting	13 Watt CFL Spring Lamp 2700K Candelabra Base	ea		\$ 7.75	\$ -	\$ -	\$ 7.75	13 Watt
High Efficacy Lighting	13 Watt CFL Spring Lamp 2700K Medium Base	ea		\$ 7.75	\$ -	\$ -	\$ 7.75	13 Watt
High Efficacy Lighting	13 Watt CFL Spring Lamp 3000K Candelabra Base	ea		\$ 7.75	\$ -	\$ -	\$ 7.75	13 Watt
High Efficacy Lighting	13 Watt CFL Spring Lamp 3000K Medium Base	ea		\$ 7.75	\$ -	\$ -	\$ 7.75	13 Watt
High Efficacy Lighting	13 Watt CFL Spring Lamp 3500K Candelabra Base	ea		\$ 7.75	\$ -	\$ -	\$ 7.75	13 Watt
High Efficacy Lighting	13 Watt CFL Spring Lamp 3500K Medium Base	ea		\$ 7.75	\$ -	\$ -	\$ 7.75	13 Watt
High Efficacy Lighting	13 Watt CFL Spring Lamp 4100K Candelabra Base	ea		\$ 7.75	\$ -	\$ -	\$ 7.75	13 Watt
High Efficacy Lighting	13 Watt CFL Spring Lamp 4100K Medium Base	ea		\$ 7.75	\$ -	\$ -	\$ 7.75	13 Watt
High Efficacy Lighting	13 Watt CFL Spring Lamp 5000K Candelabra Base	ea		\$ 7.75	\$ -	\$ -	\$ 7.75	13 Watt
High Efficacy Lighting	13 Watt CFL Spring Lamp 5000K Medium Base	ea		\$ 7.75	\$ -	\$ -	\$ 7.75	13 Watt
High Efficacy Lighting	13 Watt CFL Spring Lamp 6500K Medium Base	ea		\$ 7.75	\$ -	\$ -	\$ 7.75	13 Watt
High Efficacy Lighting	9 Watt CFL Spring Lamp 2700K Candelabra Base	ea		\$ 7.75	\$ -	\$ -	\$ 7.75	9 Watt
High Efficacy Lighting	9 Watt CFL Spring Lamp 2700K Medium Base	ea		\$ 7.75	\$ -	\$ -	\$ 7.75	9 Watt
High Efficacy Lighting	9 Watt CFL Spring Lamp 3000K Candelabra Base	ea		\$ 7.75	\$ -	\$ -	\$ 7.75	9 Watt
High Efficacy Lighting	9 Watt CFL Spring Lamp 3000K Medium Base	ea		\$ 7.75	\$ -	\$ -	\$ 7.75	9 Watt
High Efficacy Lighting	9 Watt CFL Spring Lamp 3500K Medium Base	ea		\$ 7.75	\$ -	\$ -	\$ 7.75	9 Watt
High Efficacy Lighting	9 Watt CFL Spring Lamp 4100K Candelabra Base	ea		\$ 7.75	\$ -	\$ -	\$ 7.75	9 Watt
High Efficacy Lighting	23 Watt CFL Spring Lamp HPF 2700K Medium Base	ea		\$ 7.97	\$ -	\$ -	\$ 7.97	23 Watt
High Efficacy Lighting	23 Watt CFL Spring Lamp HPF 3500K Medium Base	ea		\$ 7.97	\$ -	\$ -	\$ 7.97	23 Watt
High Efficacy Lighting	23 Watt CFL Spring Lamp HPF 4100K Medium Base	ea		\$ 7.97	\$ -	\$ -	\$ 7.97	23 Watt
High Efficacy Lighting	23 Watt CFL Spring Lamp HPF 5100K Medium Base	ea		\$ 7.97	\$ -	\$ -	\$ 7.97	23 Watt
High Efficacy Lighting	27 Watt CFL Spring Lamp HPF 2700K Medium Base	ea		\$ 7.97	\$ -	\$ -	\$ 7.97	27 Watt
High Efficacy Lighting	27 Watt CFL Spring Lamp HPF 4100K Medium Base	ea		\$ 7.97	\$ -	\$ -	\$ 7.97	27 Watt
High Efficacy Lighting	18 Watt CFL Spring Lamp 6500K Medium Base	ea		\$ 9.57	\$ -	\$ -	\$ 9.57	18 Watt
High Efficacy Lighting	23 Watt CFL Spring Lamp 2700K Medium Base	ea		\$ 9.69	\$ -	\$ -	\$ 9.69	23 Watt
High Efficacy Lighting	23 Watt CFL Spring Lamp 3000K Medium Base	ea		\$ 9.69	\$ -	\$ -	\$ 9.69	23 Watt
High Efficacy Lighting	23 Watt CFL Spring Lamp 3500K Medium Base	ea		\$ 9.69	\$ -	\$ -	\$ 9.69	23 Watt
High Efficacy Lighting	23 Watt CFL Spring Lamp 4100K Medium Base	ea		\$ 9.69	\$ -	\$ -	\$ 9.69	23 Watt
High Efficacy Lighting	23 Watt CFL Spring Lamp 5000K Medium Base	ea		\$ 9.69	\$ -	\$ -	\$ 9.69	23 Watt
High Efficacy Lighting	23 Watt CFL Spring Lamp 6500K Medium Base	ea		\$ 9.69	\$ -	\$ -	\$ 9.69	23 Watt
High Efficacy Lighting	23 Watt CFL Spring Lamp T2 Pro 2700K Medium Base	ea		\$ 10.26	\$ -	\$ -	\$ 10.26	23 Watt
High Efficacy Lighting	23 Watt CFL Spring Lamp T2 Pro 3500K Medium Base	ea		\$ 10.26	\$ -	\$ -	\$ 10.26	23 Watt
High Efficacy Lighting	23 Watt CFL Spring Lamp T2 Pro 4100K Medium Base	ea		\$ 10.26	\$ -	\$ -	\$ 10.26	23 Watt
High Efficacy Lighting	23 Watt CFL Spring Lamp T2 Pro 5000K Medium Base	ea		\$ 10.26	\$ -	\$ -	\$ 10.26	23 Watt
High Efficacy Lighting	13 Watt CFL Wet Location Spring Lamp 2700K Medium Base	ea		\$ 11.17	\$ -	\$ -	\$ 11.17	13 Watt
High Efficacy Lighting	5 Watt CFL Shatter Coat Spring Lamp 2700K Medium Base	ea		\$ 11.17	\$ -	\$ -	\$ 11.17	5 Watt
High Efficacy Lighting	27 Watt CFL Spring Lamp 2700K Medium Base	ea		\$ 11.62	\$ -	\$ -	\$ 11.62	27 Watt
High Efficacy Lighting	27 Watt CFL Spring Lamp 3000K Medium Base	ea		\$ 11.62	\$ -	\$ -	\$ 11.62	27 Watt
High Efficacy Lighting	27 Watt CFL Spring Lamp 3500K Medium Base	ea		\$ 11.62	\$ -	\$ -	\$ 11.62	27 Watt

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
High Efficacy Lighting	27 Watt CFL Spring Lamp 4100K Medium Base	ea		\$ 11.62	\$ -	\$ -	\$ 11.62	27 Watt
High Efficacy Lighting	27 Watt CFL Spring Lamp 5000K Medium Base	ea		\$ 11.62	\$ -	\$ -	\$ 11.62	27 Watt
High Efficacy Lighting	27 Watt CFL Spring Lamp 6500K Medium Base	ea		\$ 11.62	\$ -	\$ -	\$ 11.62	27 Watt
High Efficacy Lighting	18 Watt CFL Shatter Coat Spring Lamp 2700K Medium Base	ea		\$ 12.54	\$ -	\$ -	\$ 12.54	18 Watt
High Efficacy Lighting	18 Watt CFL Wet Location Spring Lamp 2700K Medium Base	ea		\$ 13.22	\$ -	\$ -	\$ 13.22	18 Watt
High Efficacy Lighting	13 Watt 15000 Hour CFL Spring Lamp 3500K Medium Base	ea		\$ 14.82	\$ -	\$ -	\$ 14.82	13 Watt
High Efficacy Lighting	13 Watt 15000 Hour CFL Spring Lamp 4100K Medium Base	ea		\$ 14.82	\$ -	\$ -	\$ 14.82	13 Watt
High Efficacy Lighting	13 Watt 15000 Hour CFL Spring Lamp 5100K Medium Base	ea		\$ 14.82	\$ -	\$ -	\$ 14.82	13 Watt
High Efficacy Lighting	13 Watt 15000 Hour CFL Spring Lamp 6500K Medium Base	ea		\$ 14.82	\$ -	\$ -	\$ 14.82	13 Watt
High Efficacy Lighting	9 Watt 15000 Hour CFL Spring Lamp 2700K Medium Base	ea		\$ 14.82	\$ -	\$ -	\$ 14.82	9 Watt
High Efficacy Lighting	9 Watt 15000 Hour CFL Spring Lamp 3500K Medium Base	ea		\$ 14.82	\$ -	\$ -	\$ 14.82	9 Watt
High Efficacy Lighting	9 Watt 15000 Hour CFL Spring Lamp 4100K Medium Base	ea		\$ 14.82	\$ -	\$ -	\$ 14.82	9 Watt
High Efficacy Lighting	13 Watt 15000 Hour CFL Spring Lamp 2700K Medium Base	ea		\$ 14.82	\$ -	\$ -	\$ 14.82	13 Watt
High Efficacy Lighting	13 Watt 15000 Hour CFL Spring Lamp 3100K Medium Base	ea		\$ 14.82	\$ -	\$ -	\$ 14.82	13 Watt
High Efficacy Lighting	18 Watt 15000 Hour CFL Spring Lamp 2700K Medium Base	ea		\$ 15.28	\$ -	\$ -	\$ 15.28	18 Watt
High Efficacy Lighting	18 Watt 15000 Hour CFL Spring Lamp 3500K Medium Base	ea		\$ 15.28	\$ -	\$ -	\$ 15.28	18 Watt
High Efficacy Lighting	18 Watt 15000 Hour CFL Spring Lamp 4100K Medium Base	ea		\$ 15.28	\$ -	\$ -	\$ 15.28	18 Watt
High Efficacy Lighting	18 Watt 15000 Hour CFL Spring Lamp 5100K Medium Base	ea		\$ 15.28	\$ -	\$ -	\$ 15.28	18 Watt
High Efficacy Lighting	23 Watt CFL Wet Location Spring Lamp 2700K Medium Base	ea		\$ 15.39	\$ -	\$ -	\$ 15.39	23 Watt
High Efficacy Lighting	23 Watt CFL Wet Location Spring Lamp 4100K Medium Base	ea		\$ 15.39	\$ -	\$ -	\$ 15.39	23 Watt
High Efficacy Lighting	23 Watt CFL Wet Location Spring Lamp 5000K Medium Base	ea		\$ 15.39	\$ -	\$ -	\$ 15.39	23 Watt
High Efficacy Lighting	14 Watt Dimmable CFL Spring Lamp 3500K Medium Base	ea		\$ 15.96	\$ -	\$ -	\$ 15.96	14 Watt
High Efficacy Lighting	14 Watt Dimmable CFL Spring Lamp 4100K Medium Base	ea		\$ 15.96	\$ -	\$ -	\$ 15.96	14 Watt
High Efficacy Lighting	14 Watt Dimmable CFL Spring Lamp 5000K Medium Base	ea		\$ 15.96	\$ -	\$ -	\$ 15.96	14 Watt
High Efficacy Lighting	14 Watt Dimmable CFL Spring Lamp 6500K Medium Base	ea		\$ 15.96	\$ -	\$ -	\$ 15.96	14 Watt
High Efficacy Lighting	27 Watt CFL Wet Location Spring Lamp 2700K Medium Base	ea		\$ 15.96	\$ -	\$ -	\$ 15.96	27 Watt
High Efficacy Lighting	27 Watt CFL Wet Location Spring Lamp 5000K Medium Base	ea		\$ 15.96	\$ -	\$ -	\$ 15.96	27 Watt
High Efficacy Lighting	23 Watt 15000 Hour CFL Spring Lamp 2700K Medium Base	ea		\$ 15.96	\$ -	\$ -	\$ 15.96	23 Watt
High Efficacy Lighting	23 Watt 15000 Hour CFL Spring Lamp 3500K Medium Base	ea		\$ 15.96	\$ -	\$ -	\$ 15.96	23 Watt
High Efficacy Lighting	23 Watt 15000 Hour CFL Spring Lamp 4100K Medium Base	ea		\$ 15.96	\$ -	\$ -	\$ 15.96	23 Watt
High Efficacy Lighting	23 Watt 15000 Hour CFL Spring Lamp 5100K Medium Base	ea		\$ 15.96	\$ -	\$ -	\$ 15.96	23 Watt
High Efficacy Lighting	23 Watt 15000 Hour CFL Spring Lamp 6500K Medium Base	ea		\$ 15.96	\$ -	\$ -	\$ 15.96	23 Watt
High Efficacy Lighting	14 Watt Dimmable CFL Spring Lamp 2700K Medium Base	ea		\$ 15.96	\$ -	\$ -	\$ 15.96	14 Watt
High Efficacy Lighting	14 Watt Dimmable CFL Spring Lamp 3000K Medium Base	ea		\$ 15.96	\$ -	\$ -	\$ 15.96	14 Watt
High Efficacy Lighting	32 Watt CFL Spring Lamp 6500K Medium Base	ea		\$ 16.30	\$ -	\$ -	\$ 16.30	32 Watt
High Efficacy Lighting	32 Watt CFL Spring Lamp 2700K Medium Base	ea		\$ 16.30	\$ -	\$ -	\$ 16.30	32 Watt
High Efficacy Lighting	32 Watt CFL Spring Lamp 3000K Medium Base	ea		\$ 16.30	\$ -	\$ -	\$ 16.30	32 Watt
High Efficacy Lighting	32 Watt CFL Spring Lamp 3500K Medium Base	ea		\$ 16.30	\$ -	\$ -	\$ 16.30	32 Watt
High Efficacy Lighting	32 Watt CFL Spring Lamp 4100K Medium Base	ea		\$ 16.30	\$ -	\$ -	\$ 16.30	32 Watt
High Efficacy Lighting	32 Watt CFL Spring Lamp 5000K Medium Base	ea		\$ 16.30	\$ -	\$ -	\$ 16.30	32 Watt
High Efficacy Lighting	23 Watt Dimmable CFL Spring Lamp 5000K Medium Base	ea		\$ 17.10	\$ -	\$ -	\$ 17.10	23 Watt
High Efficacy Lighting	27 Watt CFL Spring Lamp 277V 2700K Medium Base	ea		\$ 17.10	\$ -	\$ -	\$ 17.10	27 Watt
High Efficacy Lighting	27 Watt CFL Spring Lamp 277V 3000K Medium Base	ea		\$ 17.10	\$ -	\$ -	\$ 17.10	27 Watt
High Efficacy Lighting	27 Watt CFL Spring Lamp 277V 3500K Medium Base	ea		\$ 17.10	\$ -	\$ -	\$ 17.10	27 Watt
High Efficacy Lighting	27 Watt CFL Spring Lamp 277V 4100K Medium Base	ea		\$ 17.10	\$ -	\$ -	\$ 17.10	27 Watt
High Efficacy Lighting	27 Watt CFL Spring Lamp 277V 5100K Medium Base	ea		\$ 17.10	\$ -	\$ -	\$ 17.10	27 Watt

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
High Efficacy Lighting	27 Watt CFL Spring Lamp 277V 6500K Medium Base	ea		\$ 17.10	\$ -	\$ -	\$ 17.10	27 Watt
High Efficacy Lighting	27 Watt 15000 Hour Mini CFL Spring Lamp 2700K Medium Base	ea		\$ 17.10	\$ -	\$ -	\$ 17.10	27 Watt
High Efficacy Lighting	27 Watt 15000 Hour Mini CFL Spring Lamp 3100K Medium Base	ea		\$ 17.10	\$ -	\$ -	\$ 17.10	27 Watt
High Efficacy Lighting	27 Watt 15000 Hour Mini CFL Spring Lamp 3500K Medium Base	ea		\$ 17.10	\$ -	\$ -	\$ 17.10	27 Watt
High Efficacy Lighting	27 Watt 15000 Hour Mini CFL Spring Lamp 4100K Medium Base	ea		\$ 17.10	\$ -	\$ -	\$ 17.10	27 Watt
High Efficacy Lighting	27 Watt 15000 Hour Mini CFL Spring Lamp 5100K Medium Base	ea		\$ 17.10	\$ -	\$ -	\$ 17.10	27 Watt
High Efficacy Lighting	23 Watt Dimmable CFL Spring Lamp 2700K Medium Base	ea		\$ 17.10	\$ -	\$ -	\$ 17.10	23 Watt
High Efficacy Lighting	23 Watt Dimmable CFL Spring Lamp 3000K Medium Base	ea		\$ 17.10	\$ -	\$ -	\$ 17.10	23 Watt
High Efficacy Lighting	23 Watt Dimmable CFL Spring Lamp 3500K Medium Base	ea		\$ 17.10	\$ -	\$ -	\$ 17.10	23 Watt
High Efficacy Lighting	23 Watt Dimmable CFL Spring Lamp 4100K Medium Base	ea		\$ 17.10	\$ -	\$ -	\$ 17.10	23 Watt
High Efficacy Lighting	32 Watt CFL Wet Location Spring Lamp 2700K Medium Base	ea		\$ 18.24	\$ -	\$ -	\$ 18.24	32 Watt
High Efficacy Lighting	32 Watt CFL Wet Location Spring Lamp 5000K Medium Base	ea		\$ 18.24	\$ -	\$ -	\$ 18.24	32 Watt
High Efficacy Lighting	55 Watt CFL Top Spiral Lamp 2700K Med. Base	ea		\$ 20.52	\$ -	\$ -	\$ 20.52	55 Watt
High Efficacy Lighting	55 Watt CFL Top Spiral Lamp 5000K Med. Base	ea		\$ 20.52	\$ -	\$ -	\$ 20.52	55 Watt
High Efficacy Lighting	42 Watt CFL Spring Lamp 2700K Medium Base	ea		\$ 21.32	\$ -	\$ -	\$ 21.32	42 Watt
High Efficacy Lighting	42 Watt CFL Spring Lamp 3000K Medium Base	ea		\$ 21.32	\$ -	\$ -	\$ 21.32	42 Watt
High Efficacy Lighting	42 Watt CFL Spring Lamp 3500K Medium Base	ea		\$ 21.32	\$ -	\$ -	\$ 21.32	42 Watt
High Efficacy Lighting	42 Watt CFL Spring Lamp 4100K Medium Base	ea		\$ 21.32	\$ -	\$ -	\$ 21.32	42 Watt
High Efficacy Lighting	42 Watt CFL Spring Lamp 5000K Medium Base	ea		\$ 21.32	\$ -	\$ -	\$ 21.32	42 Watt
High Efficacy Lighting	42 Watt CFL Spring Lamp 6500K Medium Base	ea		\$ 21.32	\$ -	\$ -	\$ 21.32	42 Watt
High Efficacy Lighting	65 Watt CFL Top Spiral Lamp 5000K Med. Base	ea		\$ 23.95	\$ -	\$ -	\$ 23.95	65 Watt
High Efficacy Lighting	32 Watt CFL Spring Lamp 277V 2700K Medium Base	ea		\$ 23.95	\$ -	\$ -	\$ 23.95	32 Watt
High Efficacy Lighting	32 Watt CFL Spring Lamp 277V 3500K Medium Base	ea		\$ 23.95	\$ -	\$ -	\$ 23.95	32 Watt
High Efficacy Lighting	32 Watt CFL Spring Lamp 277V 4100K Medium Base	ea		\$ 23.95	\$ -	\$ -	\$ 23.95	32 Watt
High Efficacy Lighting	32 Watt CFL Spring Lamp 277V 5100K Medium Base	ea		\$ 23.95	\$ -	\$ -	\$ 23.95	32 Watt
High Efficacy Lighting	42 Watt CFL Wet Location Spring Lamp 4100K Medium Base	ea		\$ 24.52	\$ -	\$ -	\$ 24.52	42 Watt
High Efficacy Lighting	27 Watt CFL Spring Lamp 2700K Mogul Base	ea		\$ 26.23	\$ -	\$ -	\$ 26.23	27 Watt
High Efficacy Lighting	27 Watt CFL Spring Lamp 4100K Mogul Base	ea		\$ 26.23	\$ -	\$ -	\$ 26.23	27 Watt
High Efficacy Lighting	42 Watt CFL Spring Lamp 2700K Mogul Base	ea		\$ 26.23	\$ -	\$ -	\$ 26.23	42 Watt
High Efficacy Lighting	42 Watt CFL Spring Lamp 3500K Mogul Base	ea		\$ 26.23	\$ -	\$ -	\$ 26.23	42 Watt
High Efficacy Lighting	42 Watt CFL Spring Lamp 4100K Mogul Base	ea		\$ 26.23	\$ -	\$ -	\$ 26.23	42 Watt
High Efficacy Lighting	42 Watt CFL Spring Lamp 5100K Mogul Base	ea		\$ 26.23	\$ -	\$ -	\$ 26.23	42 Watt
High Efficacy Lighting	42 Watt CFL Spring Lamp 6500K Mogul Base	ea		\$ 26.23	\$ -	\$ -	\$ 26.23	42 Watt
High Efficacy Lighting	42 Watt CFL Spring Lamp 277V 2700K Medium Base	ea		\$ 28.51	\$ -	\$ -	\$ 28.51	42 Watt
High Efficacy Lighting	42 Watt CFL Spring Lamp 277V 3500K Medium Base	ea		\$ 28.51	\$ -	\$ -	\$ 28.51	42 Watt
High Efficacy Lighting	42 Watt CFL Spring Lamp 277V 4100K Medium Base	ea		\$ 28.51	\$ -	\$ -	\$ 28.51	42 Watt
High Efficacy Lighting	42 Watt CFL Spring Lamp 277V 5100K Medium Base	ea		\$ 28.51	\$ -	\$ -	\$ 28.51	42 Watt
High Efficacy Lighting	42 Watt CFL Spring Lamp 277V 6500K Medium Base	ea		\$ 28.51	\$ -	\$ -	\$ 28.51	42 Watt
High Efficacy Lighting	27 Watt CFL Spring Lamp 277V 2700K Mogul Base	ea		\$ 29.42	\$ -	\$ -	\$ 29.42	27 Watt
High Efficacy Lighting	27 Watt CFL Spring Lamp 277V 5100K Mogul Base	ea		\$ 29.42	\$ -	\$ -	\$ 29.42	27 Watt
High Efficacy Lighting	42 Watt CFL Spring Lamp 277V 2700K Mogul Base	ea		\$ 29.65	\$ -	\$ -	\$ 29.65	42 Watt
High Efficacy Lighting	32 Watt CFL Spring Lamp 277V 2700K Mogul Base	ea		\$ 30.33	\$ -	\$ -	\$ 30.33	32 Watt
High Efficacy Lighting	32 Watt CFL Spring Lamp 277V 4100K Mogul Base	ea		\$ 30.33	\$ -	\$ -	\$ 30.33	32 Watt
High Efficacy Lighting	32 Watt CFL Spring Lamp 277V 5100K Mogul Base	ea		\$ 30.33	\$ -	\$ -	\$ 30.33	32 Watt
High Efficacy Lighting	42 Watt CFL Spring Lamp 277V 3500K Mogul Base	ea		\$ 30.33	\$ -	\$ -	\$ 30.33	42 Watt
High Efficacy Lighting	42 Watt CFL Spring Lamp 277V 4100K Mogul Base	ea		\$ 30.33	\$ -	\$ -	\$ 30.33	42 Watt

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
High Efficacy Lighting	42 Watt CFL Spring Lamp 277V 5100K Mogul Base	ea		\$ 30.33	\$ -	\$ -	\$ 30.33	42 Watt
High Efficacy Lighting	42 Watt CFL Spring Lamp 277V 6500K Mogul Base	ea		\$ 30.33	\$ -	\$ -	\$ 30.33	42 Watt
High Efficacy Lighting	68 Watt CFL Spring Lamp 2700K Medium Base	ea		\$ 35.81	\$ -	\$ -	\$ 35.81	68 Watt
High Efficacy Lighting	68 Watt CFL Spring Lamp 3100K Medium Base	ea		\$ 35.81	\$ -	\$ -	\$ 35.81	68 Watt
High Efficacy Lighting	68 Watt CFL Spring Lamp 3500K Medium Base	ea		\$ 35.81	\$ -	\$ -	\$ 35.81	68 Watt
High Efficacy Lighting	68 Watt CFL Spring Lamp 4100K Medium Base	ea		\$ 35.81	\$ -	\$ -	\$ 35.81	68 Watt
High Efficacy Lighting	68 Watt CFL Spring Lamp 5100K Medium Base	ea		\$ 35.81	\$ -	\$ -	\$ 35.81	68 Watt
High Efficacy Lighting	68 Watt CFL Spring Lamp 6500K Medium Base	ea		\$ 35.81	\$ -	\$ -	\$ 35.81	68 Watt
High Efficacy Lighting	68 Watt CFL Spring Lamp 6500K Mogul Base	ea		\$ 38.78	\$ -	\$ -	\$ 38.78	68 Watt
High Efficacy Lighting	68 Watt CFL Spring Lamp 2700K Mogul Base	ea		\$ 38.78	\$ -	\$ -	\$ 38.78	68 Watt
High Efficacy Lighting	68 Watt CFL Spring Lamp 4100K Mogul Base	ea		\$ 38.78	\$ -	\$ -	\$ 38.78	68 Watt
High Efficacy Lighting	68 Watt CFL Spring Lamp 5000K Mogul Base	ea		\$ 38.78	\$ -	\$ -	\$ 38.78	68 Watt
High Efficacy Lighting	68 Watt CFL Spring Lamp 277V 2700K Medium Base	ea		\$ 41.06	\$ -	\$ -	\$ 41.06	68 Watt
High Efficacy Lighting	68 Watt CFL Spring Lamp 277V 4100K Medium Base	ea		\$ 41.06	\$ -	\$ -	\$ 41.06	68 Watt
High Efficacy Lighting	68 Watt CFL Spring Lamp 277V 5000K Medium Base	ea		\$ 41.06	\$ -	\$ -	\$ 41.06	68 Watt
High Efficacy Lighting	68 Watt CFL Spring Lamp 277V 2700K Mogul Base	ea		\$ 44.48	\$ -	\$ -	\$ 44.48	68 Watt
High Efficacy Lighting	68 Watt CFL Spring Lamp 277V 3500K Mogul Base	ea		\$ 44.48	\$ -	\$ -	\$ 44.48	68 Watt
High Efficacy Lighting	68 Watt CFL Spring Lamp 277V 4100K Mogul Base	ea		\$ 44.48	\$ -	\$ -	\$ 44.48	68 Watt
High Efficacy Lighting	68 Watt CFL Spring Lamp 277V 5000K Mogul Base	ea		\$ 44.48	\$ -	\$ -	\$ 44.48	68 Watt
High Efficacy Lighting	68 Watt CFL Spring Lamp 277V 6500K Mogul Base	ea		\$ 44.48	\$ -	\$ -	\$ 44.48	68 Watt
High Efficacy Lighting	50 Watt Metal Halide ED17 ANSI M110/E 4000K Coated	ea		\$ 18.24	\$ -	\$ -	\$ 18.24	50 Watt
High Efficacy Lighting	70 Watt Metal Halide ED17 ANSI M98/E 4000K Coated	ea		\$ 18.24	\$ -	\$ -	\$ 18.24	70 Watt
High Efficacy Lighting	100 Watt Metal Halide ED17 ANSI M90/E 4000K Coated	ea		\$ 18.24	\$ -	\$ -	\$ 18.24	100 Watt
High Efficacy Lighting	125 Watt Pulse Start Metal Halide ED17 ANSI M150/E 4000K	ea		\$ 37.64	\$ -	\$ -	\$ 37.64	125 Watt
High Efficacy Lighting	150 Watt Metal Halide ED17 ANSI M102/E 4000K Coated	ea		\$ 18.24	\$ -	\$ -	\$ 18.24	150 Watt
High Efficacy Lighting	175 Watt Metal Halide ED28 ANSI M57/E 3800K Coated	ea		\$ 15.96	\$ -	\$ -	\$ 15.96	175 Watt
High Efficacy Lighting	250 Watt Metal Halide ED28 ANSI M58/E 3800K Coated	ea		\$ 15.96	\$ -	\$ -	\$ 15.96	250 Watt
High Efficacy Lighting	12 Watt Dimmable LED PAR30 Short Med Base 4000K 25° Flood 120V	ea		\$ 34.21	\$ -	\$ -	\$ 34.21	12 Watt
High Efficacy Lighting	15.6 Watt PAR30 Short E26 2700K 8° Spot 120V	ea		\$ 59.31	\$ -	\$ -	\$ 59.31	15.6 Watt
High Efficacy Lighting	15.6 Watt PAR30 Short E26 3000K 8° Spot 120V	ea		\$ 59.31	\$ -	\$ -	\$ 59.31	15.6 Watt
High Efficacy Lighting	15.6 Watt PAR30 Short E26 4000K 8° Spot 120V	ea		\$ 59.31	\$ -	\$ -	\$ 59.31	15.6 Watt
High Efficacy Lighting	16.3 Watt PAR30 Short E26 2700K 23° Narrow Flood 120V	ea		\$ 59.31	\$ -	\$ -	\$ 59.31	16.3 Watt
High Efficacy Lighting	16.3 Watt PAR30 Short E26 2700K 32° Flood 120V	ea		\$ 59.31	\$ -	\$ -	\$ 59.31	16.3 Watt
High Efficacy Lighting	16.3 Watt PAR30 Short E26 3000K 23° Narrow Flood 120V	ea		\$ 59.31	\$ -	\$ -	\$ 59.31	16.3 Watt
High Efficacy Lighting	16.3 Watt PAR30 Short E26 3000K 32° Flood 120V	ea		\$ 59.31	\$ -	\$ -	\$ 59.31	16.3 Watt
High Efficacy Lighting	16.3 Watt PAR30 Short E26 4000K 23° Narrow Flood 120V	ea		\$ 59.31	\$ -	\$ -	\$ 59.31	16.3 Watt
Incandescent Lighting	Standard Household Incandescent Bulb	ea		\$ 0.78	\$ -	\$ -	\$ 0.78	100 Watt
Incandescent Lighting	Standard Household Incandescent Bulb	ea		\$ 0.62	\$ -	\$ -	\$ 0.62	40 Watt
Incandescent Lighting	Standard Household Incandescent Bulb	ea		\$ 0.55	\$ -	\$ -	\$ 0.55	60 Watt
Incandescent Lighting	Standard Household Incandescent Bulb	ea		\$ 0.70	\$ -	\$ -	\$ 0.70	75 Watt

APPENDIX D
WALL ASSEMBLY COST ESTIMATES

<i>Unformat II - WBS Level 4 (Code)</i>	<i>Unformat II - WBS Level 4 (Description)</i>	<i>Item Description</i>	<i>QTY</i>	<i>UNIT</i>	<i>Labor Hours</i>	<i>Material</i>	<i>Installation</i>	<i>Equipment</i>	<i>\$ Rate</i>	<i>Total Estimated Cost</i>
Wood Frame Wall Assembly: R-13 w/ 2"x4" Framing @ 16" oc									Cost per sf	\$ 18.05
B201002	Insulation & Vapor Barrier	Outside Air Film	2,525	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
B201001	Exterior Skin	Vinyl Siding	2,525	sf	0.065	\$ 4.07	\$ 3.75	\$ -	\$ 7.83	\$ 19,760.65
B201002	Insulation & Vapor Barrier	Exterior Film Wall Wrap	2,352	sf	0.002	\$ 0.17	\$ 0.08	\$ -	\$ 0.25	\$ 581.60
B201001	Exterior Skin	½" Oriented Strand Board Wall Sheathing	2,352	sf	0.012	\$ 0.44	\$ 0.42	\$ -	\$ 0.87	\$ 2,039.23
B201001	Exterior Skin	2x4 Studs 16" oc	649	lf	0.192	\$ 5.11	\$ 11.13	\$ -	\$ 16.25	\$ 10,543.15
B201001	Exterior Skin	2x10 Rim Joist	128	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 230.72
B201001	Exterior Skin	2x10 Header	258	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 464.68
B201001	Exterior Skin	2x14 Header	36	lf	0.018	\$ 1.94	\$ 0.62	\$ -	\$ 2.56	\$ 92.00
B201001	Exterior Skin	Air Space	2,452	lf	-					\$ -
B201002	Insulation & Vapor Barrier	R-13 Batt Insulation	2,106	sf	0.006	\$ 0.31	\$ 0.21	\$ -	\$ 0.51	\$ 1,081.15
B201003	Interior Skin	½" Gypsum Wall Board	1,639	sf	0.022	\$ 0.62	\$ 1.23	\$ -	\$ 1.85	\$ 3,029.07
B201002	Insulation & Vapor Barrier	Interior Vapor Barrier (optional)	1,639	sf	0.002	\$ 0.03	\$ 0.08	\$ -	\$ 0.11	\$ 186.98
B201002	Insulation & Vapor Barrier	Inside Air Film	1,639	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
Wood Frame Wall Assembly: R-13+5 w/ 2"x4" Framing @ 16" oc									Cost per sf	\$ 18.84
B201002	Insulation & Vapor Barrier	Outside Air Film	2,525	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
B201001	Exterior Skin	Vinyl Siding	2,525	sf	0.065	\$ 4.07	\$ 3.75	\$ -	\$ 7.83	\$ 19,760.65
B201002	Insulation & Vapor Barrier	Exterior Film Wall Wrap	2,352	sf	0.002	\$ 0.17	\$ 0.08	\$ -	\$ 0.25	\$ 581.60
B201002	Insulation & Vapor Barrier	R-5 Continuous Sheathing, exterior	2,106	sf	0.010	\$ 0.45	\$ 0.34	\$ -	\$ 0.79	\$ 1,670.53
B201001	Exterior Skin	½" Oriented Strand Board Wall Sheathing	2,352	sf	0.012	\$ 0.44	\$ 0.42	\$ -	\$ 0.87	\$ 2,039.23
B201001	Exterior Skin	2x4 Studs 16" oc	649	lf	0.192	\$ 5.11	\$ 11.13	\$ -	\$ 16.25	\$ 10,543.15
B201001	Exterior Skin	2x10 Rim Joist	128	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 230.72
B201001	Exterior Skin	2x10 Header	258	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 464.68
B201001	Exterior Skin	2x14 Header	36	lf	0.018	\$ 1.94	\$ 0.62	\$ -	\$ 2.56	\$ 92.00
B201001	Exterior Skin	Air Space	2,452	lf	-					\$ -
B201002	Insulation & Vapor Barrier	R-13 Batt Insulation	2,106	sf	0.006	\$ 0.31	\$ 0.21	\$ -	\$ 0.51	\$ 1,081.15
B201003	Interior Skin	½" Gypsum Wall Board	1,639	sf	0.022	\$ 0.62	\$ 1.23	\$ -	\$ 1.85	\$ 3,029.07
B201002	Insulation & Vapor Barrier	Interior Vapor Barrier (optional)	1,639	sf	0.002	\$ 0.03	\$ 0.08	\$ -	\$ 0.11	\$ 186.98
B201002	Insulation & Vapor Barrier	Inside Air Film	1,639	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
Wood Frame Wall Assembly: R-13+10 w/ 2"x4" Framing @ 16" oc									Cost per sf	\$ 19.47
B201002	Insulation & Vapor Barrier	Outside Air Film	2,525	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
B201001	Exterior Skin	Vinyl Siding	2,525	sf	0.065	\$ 4.07	\$ 3.75	\$ -	\$ 7.83	\$ 19,760.65
B201002	Insulation & Vapor Barrier	Exterior Film Wall Wrap	2,352	sf	0.002	\$ 0.17	\$ 0.08	\$ -	\$ 0.25	\$ 581.60
B201002	Insulation & Vapor Barrier	R-10 Continuous Sheathing, exterior	2,106	sf	0.011	\$ 1.01	\$ 0.41	\$ -	\$ 1.42	\$ 2,993.44
B201001	Exterior Skin	½" Oriented Strand Board Wall Sheathing	2,352	sf	0.012	\$ 0.44	\$ 0.42	\$ -	\$ 0.87	\$ 2,039.23
B201001	Exterior Skin	2x4 Studs 16" oc	649	lf	0.192	\$ 5.11	\$ 11.13	\$ -	\$ 16.25	\$ 10,543.15
B201001	Exterior Skin	2x10 Rim Joist	128	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 230.72
B201001	Exterior Skin	2x10 Header	258	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 464.68
B201001	Exterior Skin	2x14 Header	36	lf	0.018	\$ 1.94	\$ 0.62	\$ -	\$ 2.56	\$ 92.00
B201001	Exterior Skin	Air Space	2,452	lf	-					\$ -
B201002	Insulation & Vapor Barrier	R-13 Batt Insulation	2,106	sf	0.006	\$ 0.31	\$ 0.21	\$ -	\$ 0.51	\$ 1,081.15
B201003	Interior Skin	½" Gypsum Wall Board	1,639	sf	0.022	\$ 0.62	\$ 1.23	\$ -	\$ 1.85	\$ 3,029.07
B201002	Insulation & Vapor Barrier	Interior Vapor Barrier (optional)	1,639	sf	0.002	\$ 0.03	\$ 0.08	\$ -	\$ 0.11	\$ 186.98
B201002	Insulation & Vapor Barrier	Inside Air Film	1,639	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -

<i>Unformat II - WBS Level 4 (Code)</i>	<i>Unformat II - WBS Level 4 (Description)</i>	<i>Item Description</i>	<i>QTY</i>	<i>UNIT</i>	<i>Labor Hours</i>	<i>Material</i>	<i>Installation</i>	<i>Equipment</i>	<i>\$ Rate</i>	<i>Total Estimated Cost</i>
Wood Frame Wall Assembly: R-19 w/ 2"x6" Framing @ 24" oc									Cost per sf	\$ 18.30
B201002	Insulation & Vapor Barrier	Outside Air Film	2,525	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
B201001	Exterior Skin	Vinyl Siding	2,525	sf	0.065	\$ 4.07	\$ 3.75	\$ -	\$ 7.83	\$ 19,760.65
B201002	Insulation & Vapor Barrier	Exterior Film Wall Wrap	2,352	sf	0.002	\$ 0.17	\$ 0.08	\$ -	\$ 0.25	\$ 581.60
B201001	Exterior Skin	½" Oriented Strand Board Wall Sheathing	2,352	sf	0.012	\$ 0.44	\$ 0.42	\$ -	\$ 0.87	\$ 2,039.23
B201001	Exterior Skin	2x6 Studs 24" oc	649	lf	0.176	\$ 6.75	\$ 9.95	\$ -	\$ 16.70	\$ 10,839.31
B201001	Exterior Skin	2x10 Rim Joist	128	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 230.72
B201001	Exterior Skin	2x10 Header	258	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 464.68
B201001	Exterior Skin	2x14 Header	36	lf	0.018	\$ 1.94	\$ 0.62	\$ -	\$ 2.56	\$ 92.00
B201001	Exterior Skin	Air Space	2,452	lf	-	\$ -	\$ -	\$ -	\$ -	\$ -
B201002	Insulation & Vapor Barrier	R-19 Batt Insulation	2,106	sf	0.006	\$ 0.42	\$ 0.21	\$ -	\$ 0.63	\$ 1,321.41
B201003	Interior Skin	½" Gypsum Wall Board	1,639	sf	0.022	\$ 0.62	\$ 1.23	\$ -	\$ 1.85	\$ 3,029.07
B201002	Insulation & Vapor Barrier	Interior Vapor Barrier (optional)	1,639	sf	0.002	\$ 0.03	\$ 0.08	\$ -	\$ 0.11	\$ 186.98
B201002	Insulation & Vapor Barrier	Inside Air Film	1,639	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
Wood Frame Wall Assembly: R-21 w/ 2"x6" Framing @ 16" oc									Cost per sf	\$ 19.86
B201002	Insulation & Vapor Barrier	Outside Air Film	2,525	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
B201001	Exterior Skin	Vinyl Siding	2,525	sf	0.065	\$ 4.07	\$ 3.75	\$ -	\$ 7.83	\$ 19,760.65
B201002	Insulation & Vapor Barrier	Exterior Film Wall Wrap	2,352	sf	0.002	\$ 0.17	\$ 0.08	\$ -	\$ 0.25	\$ 581.60
B201001	Exterior Skin	½" Oriented Strand Board Wall Sheathing	2,352	sf	0.012	\$ 0.44	\$ 0.42	\$ -	\$ 0.87	\$ 2,039.23
B201001	Exterior Skin	2x6 Studs 16" oc	649	lf	0.208	\$ 7.85	\$ 12.14	\$ -	\$ 19.99	\$ 12,971.63
B201001	Exterior Skin	2x10 Rim Joist	128	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 230.72
B201001	Exterior Skin	2x10 Header	258	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 464.68
B201001	Exterior Skin	2x14 Header	36	lf	0.018	\$ 1.94	\$ 0.62	\$ -	\$ 2.56	\$ 92.00
B201001	Exterior Skin	Air Space	2,452	lf	-	\$ -	\$ -	\$ -	\$ -	\$ -
B201002	Insulation & Vapor Barrier	R-21 Batt Insulation	2,106	sf	0.007	\$ 0.94	\$ 0.24	\$ -	\$ 1.18	\$ 2,474.64
B201003	Interior Skin	½" Gypsum Wall Board	1,639	sf	0.022	\$ 0.62	\$ 1.23	\$ -	\$ 1.85	\$ 3,029.07
B201002	Insulation & Vapor Barrier	Interior Vapor Barrier (optional)	1,639	sf	0.002	\$ 0.03	\$ 0.08	\$ -	\$ 0.11	\$ 186.98
B201002	Insulation & Vapor Barrier	Inside Air Film	1,639	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
Wood Frame Wall Assembly: R-21 w/ 2"x6" Framing @ 24" oc									Cost per sf	\$ 18.85
B201002	Insulation & Vapor Barrier	Outside Air Film	2,525	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
B201001	Exterior Skin	Vinyl Siding	2,525	sf	0.065	\$ 4.07	\$ 3.75	\$ -	\$ 7.83	\$ 19,760.65
B201002	Insulation & Vapor Barrier	Exterior Film Wall Wrap	2,352	sf	0.002	\$ 0.17	\$ 0.08	\$ -	\$ 0.25	\$ 581.60
B201001	Exterior Skin	½" Oriented Strand Board Wall Sheathing	2,352	sf	0.012	\$ 0.44	\$ 0.42	\$ -	\$ 0.87	\$ 2,039.23
B201001	Exterior Skin	2x6 Studs 24" oc	649	lf	0.176	\$ 6.75	\$ 9.95	\$ -	\$ 16.70	\$ 10,839.31
B201001	Exterior Skin	2x10 Rim Joist	128	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 230.72
B201001	Exterior Skin	2x10 Header	258	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 464.68
B201001	Exterior Skin	2x14 Header	36	lf	0.018	\$ 1.94	\$ 0.62	\$ -	\$ 2.56	\$ 92.00
B201001	Exterior Skin	Air Space	2,452	lf	-	\$ -	\$ -	\$ -	\$ -	\$ -
B201002	Insulation & Vapor Barrier	R-21 Batt Insulation	2,106	sf	0.007	\$ 0.94	\$ 0.24	\$ -	\$ 1.18	\$ 2,474.64
B201003	Interior Skin	½" Gypsum Wall Board	1,639	sf	0.022	\$ 0.62	\$ 1.23	\$ -	\$ 1.85	\$ 3,029.07
B201002	Insulation & Vapor Barrier	Interior Vapor Barrier (optional)	1,639	sf	0.002	\$ 0.03	\$ 0.08	\$ -	\$ 0.11	\$ 186.98
B201002	Insulation & Vapor Barrier	Inside Air Film	1,639	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -

<i>Unformat II - WBS Level 4 (Code)</i>	<i>Unformat II - WBS Level 4 (Description)</i>	<i>Item Description</i>	<i>QTY</i>	<i>UNIT</i>	<i>Labor Hours</i>	<i>Material</i>	<i>Installation</i>	<i>Equipment</i>	<i>\$ Rate</i>	<i>Total Estimated Cost</i>
Wood Frame Wall Assembly: R-21+5 w/ 2"x6" Framing @ 24" oc									Cost per sf	\$ 19.64
B201002	Insulation & Vapor Barrier	Outside Air Film	2,525	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
B201001	Exterior Skin	Vinyl Siding	2,525	sf	0.065	\$ 4.07	\$ 3.75	\$ -	\$ 7.83	\$ 19,760.65
B201002	Insulation & Vapor Barrier	Exterior Film Wall Wrap	2,352	sf	0.002	\$ 0.17	\$ 0.08	\$ -	\$ 0.25	\$ 581.60
B201002	Insulation & Vapor Barrier	R-5 Continuous Sheathing, exterior	2,106	sf	0.010	\$ 0.45	\$ 0.34	\$ -	\$ 0.79	\$ 1,670.53
B201001	Exterior Skin	½" Oriented Strand Board Wall Sheathing	2,352	sf	0.012	\$ 0.44	\$ 0.42	\$ -	\$ 0.87	\$ 2,039.23
B201001	Exterior Skin	2x6 Studs 24" oc	649	lf	0.176	\$ 6.75	\$ 9.95	\$ -	\$ 16.70	\$ 10,839.31
B201001	Exterior Skin	2x10 Rim Joist	128	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 230.72
B201001	Exterior Skin	2x10 Header	258	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 464.68
B201001	Exterior Skin	2x14 Header	36	lf	0.018	\$ 1.94	\$ 0.62	\$ -	\$ 2.56	\$ 92.00
B201001	Exterior Skin	Air Space	2,452	lf	-	\$ -	\$ -	\$ -	\$ -	\$ -
B201002	Insulation & Vapor Barrier	R-21 Batt Insulation	2,106	sf	0.007	\$ 0.94	\$ 0.24	\$ -	\$ 1.18	\$ 2,474.64
B201003	Interior Skin	½" Gypsum Wall Board	1,639	sf	0.022	\$ 0.62	\$ 1.23	\$ -	\$ 1.85	\$ 3,029.07
B201002	Insulation & Vapor Barrier	Interior Vapor Barrier (optional)	1,639	sf	0.002	\$ 0.03	\$ 0.08	\$ -	\$ 0.11	\$ 186.98
B201002	Insulation & Vapor Barrier	Inside Air Film	1,639	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
Basement Walls: No Cavity Insulation or Exterior Insulation									Cost per Sf	\$ 14.89
A202001	Basement Wall Construction	8" CMU Basement Walls	87	sf	0.093	\$ 3.68	\$ 4.91	\$ -	\$ 8.59	\$ 747.36
A202001	Basement Wall Construction	12" CMU Basement Walls	474	sf	0.122	\$ 5.00	\$ 8.16	\$ -	\$ 13.15	\$ 6,234.81
A202002	Moisture Protection	Waterproofing; Spray applied 2-coats	561	sf	0.016	\$ 0.48	\$ 0.83	\$ -	\$ 1.31	\$ 736.00
A202002	Moisture Protection	4-Mil Poly Vapor Barrier	645	sf	0.002	\$ 0.03	\$ 0.08	\$ -	\$ 0.11	\$ 73.58
A202004	Interior Skin	½" Oriented Strand Board Wall Sheathing	645	sf	0.012	\$ 0.44	\$ 0.42	\$ -	\$ 0.87	\$ 559.23
Basement Walls: R-5 Exterior Sheathing w/o Interior Furring									Cost per Sf	\$ 15.94
A202001	Basement Wall Construction	8" CMU Basement Walls	87	sf	0.093	\$ 3.68	\$ 4.91	\$ -	\$ 8.59	\$ 747.36
A202001	Basement Wall Construction	12" CMU Basement Walls	474	sf	0.122	\$ 5.00	\$ 8.16	\$ -	\$ 13.15	\$ 6,234.81
A202002	Moisture Protection	Waterproofing; Spray applied 2-coats	561	sf	0.016	\$ 0.48	\$ 0.83	\$ -	\$ 1.31	\$ 736.00
A202003	Basement Wall Insulation	R-5 Continuous Sheathing, exterior	645	sf	0.010	\$ 0.57	\$ 0.34	\$ -	\$ 0.91	\$ 588.66
A202002	Moisture Protection	4-Mil Poly Vapor Barrier	645	sf	0.002	\$ 0.03	\$ 0.08	\$ -	\$ 0.11	\$ 73.58
A202004	Interior Skin	½" Oriented Strand Board Wall Sheathing	645	sf	0.012	\$ 0.44	\$ 0.42	\$ -	\$ 0.87	\$ 559.23
Basement Walls: R-13 Cavity Insulation and Interior Furring									Cost per Sf	\$ 17.43
A202001	Basement Wall Construction	8" CMU Basement Walls	87	sf	0.093	\$ 3.68	\$ 4.91	\$ -	\$ 8.59	\$ 747.36
A202001	Basement Wall Construction	12" CMU Basement Walls	474	sf	0.122	\$ 5.00	\$ 8.16	\$ -	\$ 13.15	\$ 6,234.81
A202002	Moisture Protection	Waterproofing; Spray applied 2-coats	561	sf	0.016	\$ 0.48	\$ 0.83	\$ -	\$ 1.31	\$ 736.00
A202002	Moisture Protection	4-Mil Poly Vapor Barrier	645	sf	0.002	\$ 0.03	\$ 0.08	\$ -	\$ 0.11	\$ 73.58
A202004	Interior Skin	2x4 Studs 16" oc, 8 foot height	70	lf	0.192	\$ 5.11	\$ 11.13	\$ -	\$ 16.25	\$ 1,137.17
A202003	Basement Wall Insulation	R-13 Batt Insulation	560	sf	0.006	\$ 0.31	\$ 0.21	\$ -	\$ 0.51	\$ 287.49
A202004	Interior Skin	½" Oriented Strand Board Wall Sheathing	645	sf	0.012	\$ 0.44	\$ 0.42	\$ -	\$ 0.87	\$ 559.23

<i>Unformat II - WBS Level 4 (Code)</i>	<i>Unformat II - WBS Level 4 (Description)</i>	<i>Item Description</i>	<i>QTY</i>	<i>UNIT</i>	<i>Labor Hours</i>	<i>Material</i>	<i>Installation</i>	<i>Equipment</i>	<i>\$ Rate</i>	<i>Total Estimated Cost</i>
*	Wood Frame Wall Assembly: R-13+10 w/ 2"x4" Framing @ 16" oc - Shear Bracing - OSB Only at Critical Areas								Cost per sf	\$ 18.66
B201002	Insulation & Vapor Barrier	Outside Air Film	2,525	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
B201001	Exterior Skin	Vinyl Siding	2,525	sf	0.065	\$ 4.07	\$ 3.75	\$ -	\$ 7.83	\$ 19,760.65
B201002	Insulation & Vapor Barrier	Exterior Film Wall Wrap	2,352	sf	0.002	\$ 0.17	\$ 0.08	\$ -	\$ 0.25	\$ 581.60
B201002	Insulation & Vapor Barrier	2" R-10 Continuous Sheathing, exterior	1,636	sf	0.011	\$ 1.01	\$ 0.41	\$ -	\$ 1.42	\$ 2,324.82
B201002	Insulation & Vapor Barrier	1-1/2" R-7.5 Continuous Sheathing, exterior	470	sf	0.011	\$ 0.86	\$ 0.41	\$ -	\$ 1.27	\$ 596.68
B201001	Exterior Skin	1/2" Oriented Strand Board Wall Sheathing	470	sf	0.012	\$ 0.44	\$ 0.42	\$ -	\$ 0.87	\$ 407.85
B201001	Exterior Skin	2x4 Studs 16" oc, 8 foot height	649	lf	0.192	\$ 5.11	\$ 11.13	\$ -	\$ 16.25	\$ 10,543.15
B201001	Exterior Skin	2x10 Rim Joist	128	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 230.72
B201001	Exterior Skin	2x10 Header	258	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 464.68
B201001	Exterior Skin	2x14 Header	36	lf	0.018	\$ 1.94	\$ 0.62	\$ -	\$ 2.56	\$ 92.00
B201001	Exterior Skin	Air Space	2,452	lf	-					\$ -
B201002	Insulation & Vapor Barrier	R-13 Batt Insulation	2,106	sf	0.006	\$ 0.31	\$ 0.21	\$ -	\$ 0.51	\$ 1,081.15
B201003	Interior Skin	1/2" Gypsum Wall Board	1,639	sf	0.022	\$ 0.62	\$ 1.23	\$ -	\$ 1.85	\$ 3,029.07
B201002	Insulation & Vapor Barrier	Interior Vapor Barrier (optional)	1,639	sf	0.002	\$ 0.03	\$ 0.08	\$ -	\$ 0.11	\$ 186.98
B201002	Insulation & Vapor Barrier	Inside Air Film	1,639	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
*	Wood Frame Wall Assembly: R-13+10 w/ 2"x4" Framing @ 16" oc - Shear Bracing - 1x4 Let-in Bracing								Cost per sf	\$ 18.78
B201002	Insulation & Vapor Barrier	Outside Air Film	2,525	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
B201001	Exterior Skin	Vinyl Siding	2,525	sf	0.065	\$ 4.07	\$ 3.75	\$ -	\$ 7.83	\$ 19,760.65
B201002	Insulation & Vapor Barrier	Exterior Film Wall Wrap	2,352	sf	0.002	\$ 0.17	\$ 0.08	\$ -	\$ 0.25	\$ 581.60
B201002	Insulation & Vapor Barrier	2" R-10 Continuous Sheathing, exterior	2,106	sf	0.011	\$ 1.01	\$ 0.41	\$ -	\$ 1.42	\$ 2,993.44
B201001	Exterior Skin	1x4 Bracing	264	lf	0.053	\$ 0.42	\$ 1.84	\$ -	\$ 2.26	\$ 596.33
B201001	Exterior Skin	2x4 Studs 16" oc, 8 foot height	649	lf	0.192	\$ 5.11	\$ 11.13	\$ -	\$ 16.25	\$ 10,543.15
B201001	Exterior Skin	2x10 Rim Joist	128	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 230.72
B201001	Exterior Skin	2x10 Header	258	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 464.68
B201001	Exterior Skin	2x14 Header	36	lf	0.018	\$ 1.94	\$ 0.62	\$ -	\$ 2.56	\$ 92.00
B201001	Exterior Skin	Air Space	2,452	lf	-					\$ -
B201002	Insulation & Vapor Barrier	R-13 Batt Insulation	2,106	sf	0.006	\$ 0.31	\$ 0.21	\$ -	\$ 0.51	\$ 1,081.15
B201003	Interior Skin	1/2" Gypsum Wall Board	1,639	sf	0.022	\$ 0.62	\$ 1.23	\$ -	\$ 1.85	\$ 3,029.07
B201002	Insulation & Vapor Barrier	Interior Vapor Barrier (optional)	1,639	sf	0.002	\$ 0.03	\$ 0.08	\$ -	\$ 0.11	\$ 186.98
B201002	Insulation & Vapor Barrier	Inside Air Film	1,639	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
*	Wood Frame Wall Assembly: R-13+10 w/ 2"x4" Framing @ 16" oc - Shear Bracing - Metal Strapping								Cost per sf	\$ 19.48
B201002	Insulation & Vapor Barrier	Outside Air Film	2,525	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
B201001	Exterior Skin	Vinyl Siding	2,525	sf	0.065	\$ 4.07	\$ 3.75	\$ -	\$ 7.83	\$ 19,760.65
B201002	Insulation & Vapor Barrier	Exterior Film Wall Wrap	2,352	sf	0.002	\$ 0.17	\$ 0.08	\$ -	\$ 0.25	\$ 581.60
B201002	Insulation & Vapor Barrier	2" R-10 Continuous Sheathing, exterior	2,106	sf	0.011	\$ 1.01	\$ 0.41	\$ -	\$ 1.42	\$ 2,993.44
B201001	Exterior Skin	16ga. Metal Strapping	528	lf	0.013	\$ 1.11	\$ 0.46	\$ -	\$ 1.56	\$ 825.22
B201001	Exterior Skin	Strapping Ties	88	ea	0.052	\$ 12.26	\$ 1.78	\$ -	\$ 14.04	\$ 1,235.82
B201001	Exterior Skin	2x4 Studs 16" oc, 8 foot height	649	lf	0.192	\$ 5.11	\$ 11.13	\$ -	\$ 16.25	\$ 10,543.15
B201001	Exterior Skin	2x10 Rim Joist	128	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 230.72
B201001	Exterior Skin	2x10 Header	258	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 464.68
B201001	Exterior Skin	2x14 Header	36	lf	0.018	\$ 1.94	\$ 0.62	\$ -	\$ 2.56	\$ 92.00
B201001	Exterior Skin	Air Space	2,452	lf	-					\$ -
B201002	Insulation & Vapor Barrier	R-13 Batt Insulation	2,106	sf	0.006	\$ 0.31	\$ 0.21	\$ -	\$ 0.51	\$ 1,081.15
B201003	Interior Skin	1/2" Gypsum Wall Board	1,639	sf	0.022	\$ 0.62	\$ 1.23	\$ -	\$ 1.85	\$ 3,029.07
B201002	Insulation & Vapor Barrier	Interior Vapor Barrier (optional)	1,639	sf	0.002	\$ 0.03	\$ 0.08	\$ -	\$ 0.11	\$ 186.98
B201002	Insulation & Vapor Barrier	Inside Air Film	1,639	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -

<i>Unformat II - WBS Level 4 (Code)</i>	<i>Unformat II - WBS Level 4 (Description)</i>	<i>Item Description</i>	<i>QTY</i>	<i>UNIT</i>	<i>Labor Hours</i>	<i>Material</i>	<i>Installation</i>	<i>Equipment</i>	<i>\$ Rate</i>	<i>Total Estimated Cost</i>
*	Wood Frame Wall Assembly: R-13+10 w/ 2"x6" Framing @ 24" oc - Shear Bracing - Inset Shear Panels								Cost per sf	\$ 19.34
B201002	Insulation & Vapor Barrier	Outside Air Film	2,525	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
B201001	Exterior Skin	Vinyl Siding	2,525	sf	0.065	\$ 4.07	\$ 3.75	\$ -	\$ 7.83	\$ 19,760.65
B201002	Insulation & Vapor Barrier	Exterior Film Wall Wrap	2,352	sf	0.002	\$ 0.17	\$ 0.08	\$ -	\$ 0.25	\$ 581.60
B201002	Insulation & Vapor Barrier	2" R-10 Continuous Sheathing, exterior	2,106	sf	0.011	\$ 1.01	\$ 0.41	\$ -	\$ 1.42	\$ 2,993.44
B201001	Exterior Skin	½" Oriented Strand Board Wall Sheathing	470	sf	0.012	\$ 0.44	\$ 0.42	\$ -	\$ 0.87	\$ 407.85
B201001	Exterior Skin	2x4 Studs, 8 foot height	66	lf	0.192	\$ 5.11	\$ 11.13	\$ -	\$ 16.25	\$ 1,072.18
B201001	Exterior Skin	2x6 Studs 24" oc, 8 foot height	649	lf	0.176	\$ 6.75	\$ 9.95	\$ -	\$ 16.70	\$ 10,839.31
B201001	Exterior Skin	2x10 Rim Joist	128	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 230.72
B201001	Exterior Skin	2x10 Header	258	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 464.68
B201001	Exterior Skin	2x14 Header	36	lf	0.018	\$ 1.94	\$ 0.62	\$ -	\$ 2.56	\$ 92.00
B201001	Exterior Skin	Air Space	2,452	lf	-					\$ -
B201002	Insulation & Vapor Barrier	R-13 Batt Insulation	2,106	sf	0.006	\$ 0.31	\$ 0.21	\$ -	\$ 0.51	\$ 1,081.15
B201003	Interior Skin	½" Gypsum Wall Board	1,639	sf	0.022	\$ 0.62	\$ 1.23	\$ -	\$ 1.85	\$ 3,029.07
B201002	Insulation & Vapor Barrier	Interior Vapor Barrier (optional)	1,639	sf	0.002	\$ 0.03	\$ 0.08	\$ -	\$ 0.11	\$ 186.98
B201002	Insulation & Vapor Barrier	Inside Air Film	1,639	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -

<i>Unformat II - WBS Level 4 (Code)</i>	<i>Unformat II - WBS Level 4 (Description)</i>	<i>Item Description</i>	<i>QTY</i>	<i>UNIT</i>	<i>Labor Hours</i>	<i>Material</i>	<i>Installation</i>	<i>Equipment</i>	<i>\$ Rate</i>	<i>Total Estimated Cost</i>
*	Wood Frame Wall Assembly: R-13+5 w/ 2"x4" Framing @ 16" oc - Shear Bracing - OSB Only at Critical Areas								Cost per sf	\$ 18.06
B201002	Insulation & Vapor Barrier	Outside Air Film	2,525	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
B201001	Exterior Skin	Vinyl Siding	2,525	sf	0.065	\$ 4.07	\$ 3.75	\$ -	\$ 7.83	\$ 19,760.65
B201002	Insulation & Vapor Barrier	Exterior Film Wall Wrap	2,352	sf	0.002	\$ 0.17	\$ 0.08	\$ -	\$ 0.25	\$ 581.60
B201002	Insulation & Vapor Barrier	1" R-5 Continuous Sheathing, exterior	1,636	sf	0.010	\$ 0.45	\$ 0.34	\$ -	\$ 0.79	\$ 1,297.40
B201002	Insulation & Vapor Barrier	1/2" R-2.5 Continuous Sheathing, exterior	470	sf	0.011	\$ 0.41	\$ 0.34	\$ -	\$ 0.75	\$ 352.34
B201001	Exterior Skin	1/2" Oriented Strand Board Wall Sheathing	470	sf	0.012	\$ 0.44	\$ 0.42	\$ -	\$ 0.87	\$ 407.85
B201001	Exterior Skin	2x4 Studs 16" oc, 8 foot height	649	lf	0.192	\$ 5.11	\$ 11.13	\$ -	\$ 16.25	\$ 10,543.15
B201001	Exterior Skin	2x10 Rim Joist	128	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 230.72
B201001	Exterior Skin	2x10 Header	258	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 464.68
B201001	Exterior Skin	2x14 Header	36	lf	0.018	\$ 1.94	\$ 0.62	\$ -	\$ 2.56	\$ 92.00
B201001	Exterior Skin	Air Space	2,452	lf	-					\$ -
B201002	Insulation & Vapor Barrier	R-13 Batt Insulation	2,106	sf	0.006	\$ 0.31	\$ 0.21	\$ -	\$ 0.51	\$ 1,081.15
B201003	Interior Skin	1/2" Gypsum Wall Board	1,639	sf	0.022	\$ 0.62	\$ 1.23	\$ -	\$ 1.85	\$ 3,029.07
B201002	Insulation & Vapor Barrier	Interior Vapor Barrier (optional)	1,639	sf	0.002	\$ 0.03	\$ 0.08	\$ -	\$ 0.11	\$ 186.98
B201002	Insulation & Vapor Barrier	Inside Air Film	1,639	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
*	Wood Frame Wall Assembly: R-13+5 w/ 2"x4" Framing @ 16" oc - Shear Bracing - 1x4 Let-in Bracing								Cost per sf	\$ 18.16
B201002	Insulation & Vapor Barrier	Outside Air Film	2,525	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
B201001	Exterior Skin	Vinyl Siding	2,525	sf	0.065	\$ 4.07	\$ 3.75	\$ -	\$ 7.83	\$ 19,760.65
B201002	Insulation & Vapor Barrier	Exterior Film Wall Wrap	2,352	sf	0.002	\$ 0.17	\$ 0.08	\$ -	\$ 0.25	\$ 581.60
B201002	Insulation & Vapor Barrier	1" R-5 Continuous Sheathing, exterior	2,106	sf	0.010	\$ 0.45	\$ 0.34	\$ -	\$ 0.79	\$ 1,670.53
B201001	Exterior Skin	1x4 Bracing	264	lf	0.053	\$ 0.42	\$ 1.84	\$ -	\$ 2.26	\$ 596.33
B201001	Exterior Skin	2x4 Studs 16" oc, 8 foot height	649	lf	0.192	\$ 5.11	\$ 11.13	\$ -	\$ 16.25	\$ 10,543.15
B201001	Exterior Skin	2x10 Rim Joist	128	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 230.72
B201001	Exterior Skin	2x10 Header	258	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 464.68
B201001	Exterior Skin	2x14 Header	36	lf	0.018	\$ 1.94	\$ 0.62	\$ -	\$ 2.56	\$ 92.00
B201001	Exterior Skin	Air Space	2,452	lf	-					\$ -
B201002	Insulation & Vapor Barrier	R-13 Batt Insulation	2,106	sf	0.006	\$ 0.31	\$ 0.21	\$ -	\$ 0.51	\$ 1,081.15
B201003	Interior Skin	1/2" Gypsum Wall Board	1,639	sf	0.022	\$ 0.62	\$ 1.23	\$ -	\$ 1.85	\$ 3,029.07
B201002	Insulation & Vapor Barrier	Interior Vapor Barrier (optional)	1,639	sf	0.002	\$ 0.03	\$ 0.08	\$ -	\$ 0.11	\$ 186.98
B201002	Insulation & Vapor Barrier	Inside Air Film	1,639	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
*	Wood Frame Wall Assembly: R-13+5 w/ 2"x4" Framing @ 16" oc - Shear Bracing - Metal Strapping								Cost per sf	\$ 18.85
B201002	Insulation & Vapor Barrier	Outside Air Film	2,525	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
B201001	Exterior Skin	Vinyl Siding	2,525	sf	0.065	\$ 4.07	\$ 3.75	\$ -	\$ 7.83	\$ 19,760.65
B201002	Insulation & Vapor Barrier	Exterior Film Wall Wrap	2,352	sf	0.002	\$ 0.17	\$ 0.08	\$ -	\$ 0.25	\$ 581.60
B201002	Insulation & Vapor Barrier	1" R-5 Continuous Sheathing, exterior	2,106	sf	0.010	\$ 0.45	\$ 0.34	\$ -	\$ 0.79	\$ 1,670.53
B201001	Exterior Skin	16ga. Metal Strapping	528	lf	0.013	\$ 1.11	\$ 0.46	\$ -	\$ 1.56	\$ 825.22
B201001	Exterior Skin	Strapping Ties	88	ea	0.052	\$ 12.26	\$ 1.78	\$ -	\$ 14.04	\$ 1,235.82
B201001	Exterior Skin	2x4 Studs 16" oc, 8 foot height	649	lf	0.192	\$ 5.11	\$ 11.13	\$ -	\$ 16.25	\$ 10,543.15
B201001	Exterior Skin	2x10 Rim Joist	128	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 230.72
B201001	Exterior Skin	2x10 Header	258	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 464.68
B201001	Exterior Skin	2x14 Header	36	lf	0.018	\$ 1.94	\$ 0.62	\$ -	\$ 2.56	\$ 92.00
B201001	Exterior Skin	Air Space	2,452	lf	-					\$ -
B201002	Insulation & Vapor Barrier	R-13 Batt Insulation	2,106	sf	0.006	\$ 0.31	\$ 0.21	\$ -	\$ 0.51	\$ 1,081.15
B201003	Interior Skin	1/2" Gypsum Wall Board	1,639	sf	0.022	\$ 0.62	\$ 1.23	\$ -	\$ 1.85	\$ 3,029.07
B201002	Insulation & Vapor Barrier	Interior Vapor Barrier (optional)	1,639	sf	0.002	\$ 0.03	\$ 0.08	\$ -	\$ 0.11	\$ 186.98
B201002	Insulation & Vapor Barrier	Inside Air Film	1,639	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -

<i>Unformat II - WBS Level 4 (Code)</i>	<i>Unformat II - WBS Level 4 (Description)</i>	<i>Item Description</i>	<i>QTY</i>	<i>UNIT</i>	<i>Labor Hours</i>	<i>Material</i>	<i>Installation</i>	<i>Equipment</i>	<i>\$ Rate</i>	<i>Total Estimated Cost</i>
*	Wood Frame Wall Assembly: R-13+5 w/ 2"x6" Framing @ 24" oc - Shear Bracing - Inset Shear Panels								Cost per sf	\$ 18.72
B201002	Insulation & Vapor Barrier	Outside Air Film	2,525	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
B201001	Exterior Skin	Vinyl Siding	2,525	sf	0.065	\$ 4.07	\$ 3.75	\$ -	\$ 7.83	\$ 19,760.65
B201002	Insulation & Vapor Barrier	Exterior Film Wall Wrap	2,352	sf	0.002	\$ 0.17	\$ 0.08	\$ -	\$ 0.25	\$ 581.60
B201002	Insulation & Vapor Barrier	1" R-5 Continuous Sheathing, exterior	2,106	sf	0.010	\$ 0.45	\$ 0.34	\$ -	\$ 0.79	\$ 1,670.53
B201001	Exterior Skin	½" Oriented Strand Board Wall Sheathing	470	sf	0.012	\$ 0.44	\$ 0.42	\$ -	\$ 0.87	\$ 407.85
B201001	Exterior Skin	2x4 Studs, 8 foot height	66	lf	0.192	\$ 5.11	\$ 11.13	\$ -	\$ 16.25	\$ 1,072.18
B201001	Exterior Skin	2x6 Studs 24" oc, 8 foot height	649	lf	0.176	\$ 6.75	\$ 9.95	\$ -	\$ 16.70	\$ 10,839.31
B201001	Exterior Skin	2x10 Rim Joist	128	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 230.72
B201001	Exterior Skin	2x10 Header	258	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 464.68
B201001	Exterior Skin	2x14 Header	36	lf	0.018	\$ 1.94	\$ 0.62	\$ -	\$ 2.56	\$ 92.00
B201001	Exterior Skin	Air Space	2,452	lf	-					\$ -
B201002	Insulation & Vapor Barrier	R-13 Batt Insulation	2,106	sf	0.006	\$ 0.31	\$ 0.21	\$ -	\$ 0.51	\$ 1,081.15
B201003	Interior Skin	½" Gypsum Wall Board	1,639	sf	0.022	\$ 0.62	\$ 1.23	\$ -	\$ 1.85	\$ 3,029.07
B201002	Insulation & Vapor Barrier	Interior Vapor Barrier (optional)	1,639	sf	0.002	\$ 0.03	\$ 0.08	\$ -	\$ 0.11	\$ 186.98
B201002	Insulation & Vapor Barrier	Inside Air Film	1,639	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -

<i>Unformat II - WBS Level 4 (Code)</i>	<i>Unformat II - WBS Level 4 (Description)</i>	<i>Item Description</i>	<i>QTY</i>	<i>UNIT</i>	<i>Labor Hours</i>	<i>Material</i>	<i>Installation</i>	<i>Equipment</i>	<i>\$ Rate</i>	<i>Total Estimated Cost</i>
*	Wood Frame Wall Assembly: R-21+5 w/ 2"x6" Framing @ 16" oc - Shear Bracing - OSB Only at Critical Areas								Cost per sf	\$ 18.86
B201002	Insulation & Vapor Barrier	Outside Air Film	2,525	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
B201001	Exterior Skin	Vinyl Siding	2,525	sf	0.065	\$ 4.07	\$ 3.75	\$ -	\$ 7.83	\$ 19,760.65
B201002	Insulation & Vapor Barrier	Exterior Film Wall Wrap	2,352	sf	0.002	\$ 0.17	\$ 0.08	\$ -	\$ 0.25	\$ 581.60
B201002	Insulation & Vapor Barrier	1" R-5 Continuous Sheathing, exterior	1,636	sf	0.010	\$ 0.45	\$ 0.34	\$ -	\$ 0.79	\$ 1,297.40
B201002	Insulation & Vapor Barrier	1/2" R-2.5 Continuous Sheathing, exterior	470	sf	0.011	\$ 0.41	\$ 0.34	\$ -	\$ 0.75	\$ 352.34
B201001	Exterior Skin	1/2" Oriented Strand Board Wall Sheathing	470	sf	0.012	\$ 0.44	\$ 0.42	\$ -	\$ 0.87	\$ 407.85
B201001	Exterior Skin	2x6 Studs 24" oc	649	lf	0.176	\$ 6.75	\$ 9.95	\$ -	\$ 16.70	\$ 10,839.31
B201001	Exterior Skin	2x10 Rim Joist	128	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 230.72
B201001	Exterior Skin	2x10 Header	258	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 464.68
B201001	Exterior Skin	2x14 Header	36	lf	0.018	\$ 1.94	\$ 0.62	\$ -	\$ 2.56	\$ 92.00
B201001	Exterior Skin	Air Space	2,452	lf	-					\$ -
B201002	Insulation & Vapor Barrier	R-21 Batt Insulation	2,106	sf	0.007	\$ 0.94	\$ 0.24	\$ -	\$ 1.18	\$ 2,474.64
B201003	Interior Skin	1/2" Gypsum Wall Board	1,639	sf	0.022	\$ 0.62	\$ 1.23	\$ -	\$ 1.85	\$ 3,029.07
B201002	Insulation & Vapor Barrier	Interior Vapor Barrier (optional)	1,639	sf	0.002	\$ 0.03	\$ 0.08	\$ -	\$ 0.11	\$ 186.98
B201002	Insulation & Vapor Barrier	Inside Air Film	1,639	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
*	Wood Frame Wall Assembly: R-21+5 w/ 2"x6" Framing @ 16" oc - Shear Bracing - 1x4 Let-in Bracing								Cost per sf	\$ 18.96
B201002	Insulation & Vapor Barrier	Outside Air Film	2,525	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
B201001	Exterior Skin	Vinyl Siding	2,525	sf	0.065	\$ 4.07	\$ 3.75	\$ -	\$ 7.83	\$ 19,760.65
B201002	Insulation & Vapor Barrier	Exterior Film Wall Wrap	2,352	sf	0.002	\$ 0.17	\$ 0.08	\$ -	\$ 0.25	\$ 581.60
B201002	Insulation & Vapor Barrier	1" R-5 Continuous Sheathing, exterior	2,106	sf	0.010	\$ 0.45	\$ 0.34	\$ -	\$ 0.79	\$ 1,670.53
B201001	Exterior Skin	1x4 Bracing	264	lf	0.053	\$ 0.42	\$ 1.84	\$ -	\$ 2.26	\$ 596.33
B201001	Exterior Skin	2x6 Studs 24" oc	649	lf	0.176	\$ 6.75	\$ 9.95	\$ -	\$ 16.70	\$ 10,839.31
B201001	Exterior Skin	2x10 Rim Joist	128	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 230.72
B201001	Exterior Skin	2x10 Header	258	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 464.68
B201001	Exterior Skin	2x14 Header	36	lf	0.018	\$ 1.94	\$ 0.62	\$ -	\$ 2.56	\$ 92.00
B201001	Exterior Skin	Air Space	2,452	lf	-					\$ -
B201002	Insulation & Vapor Barrier	R-21 Batt Insulation	2,106	sf	0.007	\$ 0.94	\$ 0.24	\$ -	\$ 1.18	\$ 2,474.64
B201003	Interior Skin	1/2" Gypsum Wall Board	1,639	sf	0.022	\$ 0.62	\$ 1.23	\$ -	\$ 1.85	\$ 3,029.07
B201002	Insulation & Vapor Barrier	Interior Vapor Barrier (optional)	1,639	sf	0.002	\$ 0.03	\$ 0.08	\$ -	\$ 0.11	\$ 186.98
B201002	Insulation & Vapor Barrier	Inside Air Film	1,639	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
*	Wood Frame Wall Assembly: R-21+5 w/ 2"x6" Framing @ 16" oc - Shear Bracing - Metal Strapping								Cost per sf	\$ 19.65
B201002	Insulation & Vapor Barrier	Outside Air Film	2,525	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
B201001	Exterior Skin	Vinyl Siding	2,525	sf	0.065	\$ 4.07	\$ 3.75	\$ -	\$ 7.83	\$ 19,760.65
B201002	Insulation & Vapor Barrier	Exterior Film Wall Wrap	2,352	sf	0.002	\$ 0.17	\$ 0.08	\$ -	\$ 0.25	\$ 581.60
B201002	Insulation & Vapor Barrier	1" R-5 Continuous Sheathing, exterior	2,106	sf	0.010	\$ 0.45	\$ 0.34	\$ -	\$ 0.79	\$ 1,670.53
B201001	Exterior Skin	16ga. Metal Strapping	528	lf	0.013	\$ 1.11	\$ 0.46	\$ -	\$ 1.56	\$ 825.22
B201001	Exterior Skin	Strapping Ties	88	ea	0.052	\$ 12.26	\$ 1.78	\$ -	\$ 14.04	\$ 1,235.82
B201001	Exterior Skin	2x6 Studs 24" oc	649	lf	0.176	\$ 6.75	\$ 9.95	\$ -	\$ 16.70	\$ 10,839.31
B201001	Exterior Skin	2x10 Rim Joist	128	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 230.72
B201001	Exterior Skin	2x10 Header	258	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 464.68
B201001	Exterior Skin	2x14 Header	36	lf	0.018	\$ 1.94	\$ 0.62	\$ -	\$ 2.56	\$ 92.00
B201001	Exterior Skin	Air Space	2,452	lf	-					\$ -
B201002	Insulation & Vapor Barrier	R-21 Batt Insulation	2,106	sf	0.007	\$ 0.94	\$ 0.24	\$ -	\$ 1.18	\$ 2,474.64
B201003	Interior Skin	1/2" Gypsum Wall Board	1,639	sf	0.022	\$ 0.62	\$ 1.23	\$ -	\$ 1.85	\$ 3,029.07
B201002	Insulation & Vapor Barrier	Interior Vapor Barrier (optional)	1,639	sf	0.002	\$ 0.03	\$ 0.08	\$ -	\$ 0.11	\$ 186.98
B201002	Insulation & Vapor Barrier	Inside Air Film	1,639	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -

<i>Unformat II - WBS Level 4 (Code)</i>	<i>Unformat II - WBS Level 4 (Description)</i>	<i>Item Description</i>	<i>QTY</i>	<i>UNIT</i>	<i>Labor Hours</i>	<i>Material</i>	<i>Installation</i>	<i>Equipment</i>	<i>\$ Rate</i>	<i>Total Estimated Cost</i>
*	Wood Frame Wall Assembly: R-21+5 w/ 2"x6" Framing @ 24" oc - Shear Bracing - Inset Shear Panels								Cost per sf	\$ 19.38
B201002	Insulation & Vapor Barrier	Outside Air Film	2,525	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
B201001	Exterior Skin	Vinyl Siding	2,525	sf	0.065	\$ 4.07	\$ 3.75	\$ -	\$ 7.83	\$ 19,760.65
B201002	Insulation & Vapor Barrier	Exterior Film Wall Wrap	2,352	sf	0.002	\$ 0.17	\$ 0.08	\$ -	\$ 0.25	\$ 581.60
B201002	Insulation & Vapor Barrier	1" R-5 Continuous Sheathing, exterior	2,106	sf	0.010	\$ 0.45	\$ 0.34	\$ -	\$ 0.79	\$ 1,670.53
B201001	Exterior Skin	½" Oriented Strand Board Wall Sheathing	470	sf	0.012	\$ 0.44	\$ 0.42	\$ -	\$ 0.87	\$ 407.85
B201001	Exterior Skin	2x4 Studs, 8 foot height	66	lf	0.192	\$ 5.11	\$ 11.13	\$ -	\$ 16.25	\$ 1,072.18
B201001	Exterior Skin	2x6 Studs 24" oc, 8 foot height	649	lf	0.176	\$ 6.75	\$ 9.95	\$ -	\$ 16.70	\$ 10,839.31
B201001	Exterior Skin	2x10 Rim Joist	128	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 230.72
B201001	Exterior Skin	2x10 Header	258	lf	0.015	\$ 1.27	\$ 0.54	\$ -	\$ 1.80	\$ 464.68
B201001	Exterior Skin	2x14 Header	36	lf	0.018	\$ 1.94	\$ 0.62	\$ -	\$ 2.56	\$ 92.00
B201001	Exterior Skin	Air Space	2,452	lf	-					\$ -
B201002	Insulation & Vapor Barrier	R-21 Batt Insulation	2,106	sf	0.007	\$ 0.94	\$ 0.24	\$ -	\$ 1.18	\$ 2,474.64
B201003	Interior Skin	½" Gypsum Wall Board	1,639	sf	0.022	\$ 0.62	\$ 1.23	\$ -	\$ 1.85	\$ 3,029.07
B201002	Insulation & Vapor Barrier	Interior Vapor Barrier (optional)	1,639	sf	0.002	\$ 0.03	\$ 0.08	\$ -	\$ 0.11	\$ 186.98
B201002	Insulation & Vapor Barrier	Inside Air Film	1,639	sf	-	\$ -	\$ -	\$ -	\$ -	\$ -
*	Shear Bracing Options - These systems utilize strategic bracing and rigid insulation sheathing in lieu of traditional methods (full sheathing enclosure), these types of construction are typically engineered by qualified and certified design professionals. Assumes 20% OSB coverage at "OSB Only at Critical Areas" options.									

APPENDIX E
COST DATA FOR 50% BETTER CODE DEVELOPMENT

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
Super high R-values	10 1/4" (260 mm) thick SIP with R-value of 38.0 at 75oF and an R-value of 39.0 at 40 oF	sf	0.020	\$ 5.04	\$ 0.69	\$ -	\$ 5.73	R-39
Super high R-values	12 1/4" (311 mm) thick SIP with R-value of 46.0 at 75oF and an R-value of 47.0 at 40 oF	sf	0.020	\$ 5.54	\$ 0.69	\$ -	\$ 6.24	R-47
Super high R-values	30"x35" panel, vacuum super insulation; R-36; 1 3/8" thick; rigid, polypropylene-encased, aerogel core	sf	0.101	\$ 7.39	\$ 0.48	\$ -	\$ 7.87	R-36 Aerogel
Super high R-values	4 1/2" (114 mm) thick SIP with R-value of 15.0 at 75oF and an R-value of 16.0 at 40 oF	sf	0.020	\$ 3.79	\$ 0.69	\$ -	\$ 4.48	R-16
Super high R-values	6 1/2" (165 mm) thick SIP with R-value of 23.0 at 75oF and an R-value of 24.0 at 40 oF	sf	0.020	\$ 4.15	\$ 0.69	\$ -	\$ 4.84	R-24
Super high R-values	8 1/4" (210 mm) thick SIP with R-value of 30.0 at 75oF and an R-value of 31.0 at 40 oF	sf	0.020	\$ 4.59	\$ 0.69	\$ -	\$ 5.28	R-31
Super high R-values	TUFF-R 1" x 4' x 8' R-6.5	sf	0.010	\$ 0.58	\$ 0.34	\$ -	\$ 0.92	R-6.5 Foam
Super high R-values	TUFF-R 1/2" x 4' x 8' R-3.3	sf	0.010	\$ 0.33	\$ 0.34	\$ -	\$ 0.67	R-3.3 Foam
Super high R-values	TUFF-R 3/4" x 4' x 8' R-5	sf	0.010	\$ 0.38	\$ 0.34	\$ -	\$ 0.72	R-5 Foam
Super high R-values	TUFF-R 5/8" x 4' x 8' R-4.1	sf	0.010	\$ 0.37	\$ 0.34	\$ -	\$ 0.71	R-4.1 Foam
Solar control options	Window awnings, aluminum, window 3' high, 12' wide	ea	3.200	\$ 370.77	\$ 110.09	\$ -	\$ 480.85	N/A
Solar control options	Window awnings, aluminum, window 3' high, 4' wide	ea	0.800	\$ 253.26	\$ 27.38	\$ -	\$ 280.64	N/A
Solar control options	Window awnings, aluminum, window 3' high, 6' wide	ea	1.000	\$ 306.88	\$ 34.22	\$ -	\$ 341.10	N/A
Solar control options	Window awnings, aluminum, window 3' high, 9' wide	ea	1.778	\$ 333.12	\$ 61.03	\$ -	\$ 394.15	N/A
Solar control options	Window awnings, aluminum, window 4' high, 12' wide	ea	3.200	\$ 462.03	\$ 110.09	\$ -	\$ 572.12	N/A
Solar control options	Window awnings, aluminum, window 4' high, 4' wide	ea	0.800	\$ 185.95	\$ 27.38	\$ -	\$ 213.33	N/A
Solar control options	Window awnings, aluminum, window 4' high, 6' wide	ea	1.000	\$ 258.97	\$ 34.22	\$ -	\$ 293.19	N/A
Solar control options	Window awnings, aluminum, window 4' high, 9' wide	ea	1.778	\$ 370.77	\$ 61.03	\$ -	\$ 431.80	N/A
Solar control options	Window awnings, aluminum, window 6' high, 12' wide	ea	3.200	\$ 1,568.62	\$ 110.09	\$ -	\$ 1,678.71	N/A
Solar control options	Window awnings, aluminum, window 6' high, 4' wide	ea	0.800	\$ 253.26	\$ 27.38	\$ -	\$ 280.64	N/A
Solar control options	Window awnings, aluminum, window 6' high, 6' wide	ea	1.000	\$ 387.88	\$ 34.22	\$ -	\$ 422.10	N/A
Solar control options	Window awnings, aluminum, window 6' high, 9' wide	ea	1.778	\$ 1,026.73	\$ 61.03	\$ -	\$ 1,087.77	N/A
Solar control options	Window awnings, roll-up aluminum, 2'-6" wide	ea	0.571	\$ 216.76	\$ 19.68	\$ -	\$ 236.43	N/A
Solar control options	Window awnings, roll-up aluminum, 3' wide	ea	0.667	\$ 222.46	\$ 22.82	\$ -	\$ 245.28	N/A
Solar control options	Window awnings, roll-up aluminum, 4' wide	ea	0.800	\$ 266.95	\$ 27.38	\$ -	\$ 294.33	N/A
Heat pump water heaters	EcoSense Hybrid Electric Pump; 40 gallon	ea	4.000	\$ 1,594.86	\$ 161.54	\$ -	\$ 1,756.40	EF=2.0
Heat pump water heaters	EcoSense Hybrid Electric Pump; 50 gallon	ea	4.000	\$ 1,480.78	\$ 161.54	\$ -	\$ 1,642.32	EF=2.0
Heat pump water heaters	GeoSpring™ hybrid water heater	ea	4.000	\$ 1,596.00	\$ 161.54	\$ -	\$ 1,757.54	EF=2.35
Heat pump water heaters	Hybrid Electric Heat Pump Heater; 60 gallon	ea	4.444	\$ 1,710.08	\$ 179.47	\$ -	\$ 1,889.55	2.40 EFF / 2.33 Hybrid / 0.88 electric
Heat pump water heaters	Hybrid Electric Heat Pump Heater; 80 gallon	ea	5.000	\$ 2,280.49	\$ 201.92	\$ -	\$ 2,482.42	2.30 EFF / 2.33 Hybrid / 0.85 electric
Heat pump water heaters	Voltex® Hybrid Electric Heat Pump; 60 gallon	ea	4.444	\$ 1,664.45	\$ 179.47	\$ -	\$ 1,843.92	EF=2.4
Heat pump water heaters	Voltex® Hybrid Electric Heat Pump; 80 gallon	ea	5.000	\$ 2,440.21	\$ 201.92	\$ -	\$ 2,642.13	EF=2.3
Instantaneous water heaters	100,000 BTU NEXT Hybrid® Residential Gas Water Heater	ea	6.154	\$ 2,280.43	\$ 263.27	\$ -	\$ 2,543.71	TE=90%

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
Instantaneous water heaters	4.0 GPM Electric Tankless Water Heater	ea	3.330	\$ 740.39	\$ 142.46	\$ -	\$ 882.85	NOT ENERGY STAR COMPLIANT
Instantaneous water heaters	6.4 GPM 150,000 BTU LP Gas Indoor Tankless Water Heater	ea	3.330	\$ 910.37	\$ 142.46	\$ -	\$ 1,052.83	EF=0.82
Instantaneous water heaters	6.4 GPM 150,000 BTU LP Gas Outdoor Tankless Water Heater	ea	3.500	\$ 910.37	\$ 149.73	\$ -	\$ 1,060.10	EF=0.82
Instantaneous water heaters	6.4 GPM 150,000 BTU Natural Gas Indoor Tankless Water Heater	ea	4.000	\$ 963.99	\$ 171.12	\$ -	\$ 1,135.11	EF=0.82
Instantaneous water heaters	6.4 GPM 150,000 BTU Natural Gas Outdoor Tankless Water Heater	ea	3.500	\$ 910.37	\$ 149.73	\$ -	\$ 1,060.10	EF=0.82
Instantaneous water heaters	7.4 GPM 199,900 BTU High Altitude LP Gas Power Vent Indoor Tankless Water Heater	ea	4.000	\$ 854.47	\$ 171.12	\$ -	\$ 1,025.59	EF=0.82
Instantaneous water heaters	8.4 GPM 180,000 BTU LP Gas Indoor Tankless Water Heater	ea	4.000	\$ 1,139.68	\$ 171.12	\$ -	\$ 1,310.80	EF=0.82
Instantaneous water heaters	8.4 GPM 180,000 BTU Natural Gas Outdoor Tankless Water Heater	ea	3.500	\$ 1,139.68	\$ 149.73	\$ -	\$ 1,289.41	EF=0.82
Instantaneous water heaters	8.4 GPM 180,000 BTU Outdoor LP Gas Tankless Water Heater	ea	3.500	\$ 1,139.68	\$ 149.73	\$ -	\$ 1,289.41	EF=0.82
Instantaneous water heaters	8.4 GPM 180,000 BTU Tankless Gas Water Heater	ea	4.000	\$ 1,139.68	\$ 171.12	\$ -	\$ 1,310.80	EF=0.82
Instantaneous water heaters	8.4 GPM 180,000 BTU Tankless Gas Water Heater	ea	4.000	\$ 1,139.68	\$ 171.12	\$ -	\$ 1,310.80	EF=0.82
Instantaneous water heaters	9.5 GPM 199,900 BTU LP Gas Indoor Tankless Water Heater	ea	4.000	\$ 1,367.84	\$ 171.12	\$ -	\$ 1,538.96	EF=0.82
Instantaneous water heaters	9.5 GPM 199,900 BTU LP Gas Outdoor Tankless Water Heater	ea	4.000	\$ 1,367.84	\$ 171.12	\$ -	\$ 1,538.96	EF=0.82
Instantaneous water heaters	9.5 GPM 199,900 BTU Natural Gas Indoor Tankless Water Heater	ea	4.000	\$ 1,367.84	\$ 171.12	\$ -	\$ 1,538.96	EF=0.82
Instantaneous water heaters	9.5 GPM 199,900 BTU Natural Gas Outdoor Tankless Water Heater	ea	3.500	\$ 1,367.84	\$ 149.73	\$ -	\$ 1,517.57	EF=0.82
Instantaneous water heaters	AE 12 Tankless Point-of-use Water Heater (Requires 240V Hard Wiring)	ea	4.000	\$ 261.25	\$ 171.12	\$ -	\$ 432.37	NOT ENERGY STAR COMPLIANT
Instantaneous water heaters	Ariston Mini-Tank Electric Point of Use Water Heater	ea	3.330	\$ 232.73	\$ 142.46	\$ -	\$ 375.19	N/A
Instantaneous water heaters	ECO200XN 9.5 GPM 199,900 BTU Gas Tankless Water Heater	ea	4.000	\$ 1,627.95	\$ 171.12	\$ -	\$ 1,799.07	EF=0.94
Instantaneous water heaters	ECO200XP 9.5 GPM 199,900 BTU Gas Tankless Water Heater	ea	4.000	\$ 1,627.95	\$ 171.12	\$ -	\$ 1,799.07	EF=0.94
Instantaneous water heaters	ECOH200DVN 9.5 GPM 199,900 BTU Gas Tankless Water Heater	ea	4.000	\$ 1,627.95	\$ 171.12	\$ -	\$ 1,799.07	EF=0.94
Instantaneous water heaters	Electric Tankless Water Heater for Warmer Climates	ea	3.330	\$ 512.23	\$ 142.46	\$ -	\$ 654.69	NOT ENERGY STAR COMPLIANT
Instantaneous water heaters	Indoor 7.5 gpm Tankless Gas Water Heater	ea	4.000	\$ 740.39	\$ 171.12	\$ -	\$ 911.51	EF=0.82

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
Instantaneous water heaters	On Demand 13 kw 240 Volts Tankless Electric Water Heater	ea	3.330	\$ 260.11	\$ 142.46	\$ -	\$ 402.57	TBD
Instantaneous water heaters	On Demand 18 kw 240 Volts Tankless Electric Water Heater	ea	3.330	\$ 568.13	\$ 142.46	\$ -	\$ 710.59	TBD
Instantaneous water heaters	On Demand 27 kw 240 Volts Tankless Electric Water Heater	ea	4.000	\$ 739.25	\$ 171.12	\$ -	\$ 910.37	TBD
Instantaneous water heaters	On Demand 3 kw 110 Volts Point-of-Use Tankless Electric Water Heater	ea	3.330	\$ 260.11	\$ 142.46	\$ -	\$ 402.57	TBD
Instantaneous water heaters	On Demand 7 kw 240 Volts Tankless Electric Water Heater	ea	4.000	\$ 260.11	\$ 171.12	\$ -	\$ 431.23	TBD
Instantaneous water heaters	On Demand 7.4 GPM at 45 degree rise 199,900 BTU Natural Gas Indoor PV Tankless Water Heater	ea	4.000	\$ 1,367.84	\$ 171.12	\$ -	\$ 1,538.96	EF=0.82
Instantaneous water heaters	On Demand 9 kw 240 Volts Tankless Electric Water Heater	ea	3.330	\$ 260.11	\$ 142.46	\$ -	\$ 402.57	TBD
Instantaneous water heaters	Outdoor 7.5 gpm Tankless Gas Water Heater	ea	4.000	\$ 740.39	\$ 171.12	\$ -	\$ 911.51	EF=0.82
Instantaneous water heaters	Outdoor 9.4 gpm Tankless Gas Water Heater	ea	4.000	\$ 854.47	\$ 171.12	\$ -	\$ 1,025.59	EF=0.82
Instantaneous water heaters	Paloma 7.4 GPM 199,900 BTU LP Gas Outdoor Tankless Water Heater	ea	3.500	\$ 854.47	\$ 149.73	\$ -	\$ 1,004.20	EF=0.82
Instantaneous water heaters	Paloma 7.4 GPM 199,900 BTU LP Gas Power Vent Indoor Tankless Water Heater	ea	4.000	\$ 1,196.72	\$ 171.12	\$ -	\$ 1,367.84	EF=0.82
Instantaneous water heaters	Paloma On Demand 5.3 GPM at 45 degree rise 141,000 BTU LP Gas Indoor Direct Vent Tankless Water Heater	ea	4.000	\$ 983.38	\$ 171.12	\$ -	\$ 1,154.51	EF=0.82
Instantaneous water heaters	Paloma On Demand 5.3 GPM at 45 degree rise 141,000 BTU Natural Gas Indoor Direct Vent Tankless Water Heater	ea	4.000	\$ 983.38	\$ 171.12	\$ -	\$ 1,154.51	EF=0.82
Instantaneous water heaters	Paloma On Demand 5.3 GPM at 45 degree rise 141,000 BTU Natural Gas Outdoor Tankless Water Heater	ea	3.500	\$ 963.99	\$ 149.73	\$ -	\$ 1,113.72	EF=0.82
Instantaneous water heaters	PowerStar Electric Tankless Water Heater 9.5 kw	ea	3.330	\$ 241.85	\$ 142.46	\$ -	\$ 384.31	NOT ENERGY STAR COMPLIANT
Instantaneous water heaters	TANKLESS HYDRONIC BOILER 199,900 BTUh, 83% AFUE	ea	6.154	\$ 3,086.05	\$ 263.27	\$ -	\$ 3,349.32	83% AFUE
Instantaneous water heaters	TANKLESS WATER HEATER 180,000 BTUh 83% AFUE	ea	6.154	\$ 1,119.47	\$ 263.27	\$ -	\$ 1,382.74	83% AFUE
Instantaneous water heaters	TANKLESS WATER HEATER 199,900 BTUh 84% AFUE	ea	6.154	\$ 1,429.96	\$ 263.27	\$ -	\$ 1,693.23	84% AFUE
Instantaneous water heaters	TANKLESS WATER HEATER 250,000 BTU, 84% AFUE	ea	6.154	\$ 3,086.05	\$ 263.27	\$ -	\$ 3,349.32	84% AFUE
Instantaneous water heaters	TANKLESS WATER HEATER 250,000 BTUh 84% AFUE	ea	6.154	\$ 2,121.55	\$ 263.27	\$ -	\$ 2,384.83	84% AFUE
Instantaneous water heaters	TANKLESS WATER HEATER 380,000 BTU, 80% AFUE	ea	6.154	\$ 4,810.30	\$ 263.27	\$ -	\$ 5,073.57	80% AFUE
Solar assisted water heaters	20-Tube Hurras Solar Hot Water Collector SRCC OG-100 Certified SRCC certification number 100-2009020D	ea	93.450	\$ 627.45	\$ 5,704.08	\$ -	\$ 6,331.53	TBD

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
Solar assisted water heaters	30-Tube Hurras Solar Hot Water Collector SRCC OG-100 Certified SRCC certification number 100-2009020E	ea	112.149	\$ 963.99	\$ 6,844.90	\$ -	\$ 7,808.89	TBD
Solar assisted water heaters	Cirrex® SUN Direct Solar Booster Tanks; 120 gallon	ea	3.200	\$ 1,420.26	\$ 195.67	\$ -	\$ 1,615.93	N/A
Solar assisted water heaters	Cirrex® SUN Direct Solar Booster Tanks; 80 gallon	ea	2.286	\$ 1,129.35	\$ 139.78	\$ -	\$ 1,269.13	N/A
Solar assisted water heaters	Cirrex® SUNX Indirect Solar Booster Tanks; 120 gallon	ea	3.200	\$ 1,825.25	\$ 195.67	\$ -	\$ 2,020.92	2.5 SEF
Solar assisted water heaters	Cirrex® SUNX Indirect Solar Booster Tanks; 80 gallon	ea	2.286	\$ 1,277.66	\$ 139.78	\$ -	\$ 1,417.44	2.5 SEF
Solar assisted water heaters	Marathon Thermal Storage Tank - 105 Gallon Capacity	ea	2.667	\$ 1,363.28	\$ 163.08	\$ -	\$ 1,526.36	N/A
Solar assisted water heaters	Marathon Thermal Storage Tank - 50 Gallon Capacity	ea	1.800	\$ 1,023.60	\$ 110.07	\$ -	\$ 1,133.66	N/A
Solar assisted water heaters	Solar High Temp Expansion Tank - (6.6 G)	ea	0.941	\$ 148.31	\$ 57.54	\$ -	\$ 205.85	N/A
Solar assisted water heaters	Solar High Temp Expansion Tank - (80 G)	ea	2.286	\$ 1,483.06	\$ 139.78	\$ -	\$ 1,622.85	N/A
Solar assisted water heaters	Solar Hot Water System; Complete Kit With 20 square feet of Solar Thermal Collectors	ea	53.330	\$ 4,219.88	\$ 2,937.60	\$ -	\$ 7,157.48	N/A
Solar assisted water heaters	Solar Hot Water System; Complete Kit With 40 square feet of Solar Thermal Collectors	ea	40.000	\$ 5,178.17	\$ 2,196.07	\$ -	\$ 7,374.24	N/A
Solar assisted water heaters	Solar Hot Water System; Complete Kit Without Solar Collectors	ea	32.000	\$ 3,227.37	\$ 1,768.27	\$ -	\$ 4,995.64	N/A
Solar assisted water heaters	Solar Water Storage Tank- SolarStor 119 gallon SDCE	ea	3.200	\$ 2,737.96	\$ 176.83	\$ -	\$ 2,914.79	TBD
Solar assisted water heaters	Solar Water Storage Tank- SolarStor 50 gallon SCE	ea	1.800	\$ 1,618.82	\$ 99.46	\$ -	\$ 1,718.28	TBD
Solar assisted water heaters	Solar Water Storage Tank- SolarStor 80 gallon SDCE	ea	2.286	\$ 2,394.57	\$ 126.32	\$ -	\$ 2,520.89	TBD
Solar assisted water heaters	Solar Water Storage Tank -TT 40 Titanium tank ,1 coil	ea	5.000	\$ 898.39	\$ 276.29	\$ -	\$ 1,174.68	N/A
Solar assisted water heaters	SOLARAIDE™ PASSIVE WATER HEATING SYSTEMS 47 Gallon Storage Capacity	ea	25.000	\$ 2,508.45	\$ 1,381.46	\$ -	\$ 3,889.91	SEF=1.3
Solar assisted water heaters	SOLARAIDE™ PASSIVE WATER HEATING SYSTEMS 80 Gallon Storage Capacity	ea	32.000	\$ 3,174.15	\$ 1,768.27	\$ -	\$ 4,942.42	SEF=1.5
Solar assisted water heaters	SOLPAK™ ACTIVE SOLAR WATER HEATING SYSTEMS FEATURING MARATHON® TANKS 105 Gallon Storage Capacity	ea	40.000	\$ 5,898.02	\$ 2,210.33	\$ -	\$ 8,108.35	Rating pending
Solar assisted water heaters	SOLPAK™ ACTIVE SOLAR WATER HEATING SYSTEMS FEATURING MARATHON® TANKS 85 Gallon Storage Capacity	ea	32.000	\$ 5,424.91	\$ 1,768.27	\$ -	\$ 7,193.18	Rating pending
Solar assisted water heaters	SolPak™ Active Solar Water Heating Systems 119 Gallon Storage Capacity - ENERGY STAR	ea	40.000	\$ 4,763.24	\$ 2,210.33	\$ -	\$ 6,973.57	EF=3.2

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
Solar assisted water heaters	SolPak™ Active Solar Water Heating Systems 80 Gallon Storage Capacity - ENERGY STAR	ea	32.000	\$ 4,199.55	\$ 1,768.27	\$ -	\$ 5,967.82	EF=2.6
Solar assisted water heaters	Varem Solar High Temp Expansion Tank - (10.5 G)	ea	0.941	\$ 199.64	\$ 57.54	\$ -	\$ 257.18	N/A
PV Arrays - Cables (Controller to Battery)	14" Single Strand #10AWG Controller to Battery Cable	ea	0.500	\$ 6.84	\$ 28.20	\$ -	\$ 35.04	N/A
PV Arrays - Cables (Controller to Battery)	14" Single Strand #10AWG Controller to Battery Cable	ea	0.500	\$ 11.41	\$ 28.20	\$ -	\$ 39.60	N/A
PV Arrays - Cables (Controller to Battery)	2 Strand 10' Output Cable	ea	0.089	\$ 26.24	\$ 5.01	\$ -	\$ 31.25	N/A
PV Arrays - Cables (Controller to Battery)	2 Strand 15' Output Cable	ea	0.133	\$ 36.51	\$ 7.52	\$ -	\$ 44.03	N/A
PV Arrays - Cables (Controller to Battery)	2 Strand 20' Output Cable	ea	0.178	\$ 44.49	\$ 10.03	\$ -	\$ 54.52	N/A
PV Arrays - Cables (Controller to Battery)	2 Strand 25' Output Cable	ea	0.222	\$ 52.48	\$ 12.53	\$ -	\$ 65.01	N/A
PV Arrays - Cables (Controller to Battery)	2 Strand 25' Output Cable	ea	0.222	\$ 54.76	\$ 12.53	\$ -	\$ 67.29	N/A
PV Arrays - Cables (Controller to Battery)	2 Strand 5' Output Cable	ea	0.044	\$ 18.25	\$ 2.51	\$ -	\$ 20.76	N/A
PV Arrays - Cables (Controller to Battery)	2 Strand 50' Output Cable	ea	0.267	\$ 98.11	\$ 15.04	\$ -	\$ 113.15	N/A
PV Arrays - Cables (Controller to Battery)	3' #10/2 Controller to Battery Cable w/ Fuses & Fuse Holder	ea	0.887	\$ 34.22	\$ 50.02	\$ -	\$ 84.24	N/A
PV Arrays - Cables (Controller to Battery)	60" Single Strand #6AWG Controller to Battery Cable	ea	0.500	\$ 39.93	\$ 28.20	\$ -	\$ 68.12	N/A
PV Arrays - Cables (Inverter)	60" #4AWG Battery to Inverter Cable (PAIR)	ea	1.460	\$ 54.76	\$ 82.33	\$ -	\$ 137.09	N/A
PV Arrays - Mounting (roof/ground)	106" Mounting Rail UniRac Mounting Rail	ea	1.475	\$ 182.53	\$ 78.10	\$ -	\$ 260.63	N/A
PV Arrays - Mounting (roof/ground)	168" Mounting Rail UniRac Mounting Rail	ea	2.338	\$ 285.20	\$ 123.79	\$ -	\$ 408.99	N/A
PV Arrays - Mounting (roof/ground)	192" Mounting Rail UniRac Mounting Rail	ea	2.672	\$ 296.61	\$ 141.47	\$ -	\$ 438.08	N/A
PV Arrays - Mounting (roof/ground)	432" Mounting Rail UniRac Mounting Rail	ea	6.012	\$ 598.93	\$ 318.31	\$ -	\$ 917.24	N/A
PV Arrays - Mounting (roof/ground)	48" Mounting Rail UniRac Mounting Rail	ea	0.668	\$ 102.67	\$ 35.37	\$ -	\$ 138.04	N/A
PV Arrays - Mounting (roof/ground)	60" Mounting Rail UniRac Mounting Rail	ea	0.835	\$ 114.08	\$ 44.21	\$ -	\$ 158.29	N/A
PV Arrays - Mounting (roof/ground)	72" Mounting Rail UniRac Mounting Rail	ea	1.002	\$ 131.19	\$ 53.05	\$ -	\$ 184.25	N/A
PV Arrays - Mounting (roof/ground)	84" Mounting Rail UniRac Mounting Rail	ea	1.169	\$ 154.01	\$ 61.89	\$ -	\$ 215.90	N/A

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
PV Arrays - Mounting (roof/ground)	96" Mounting Rail UniRac Mounting Rail	ea	1.336	\$ 165.42	\$ 70.73	\$ -	\$ 236.15	N/A
PV Arrays - Cables (Battery)	10" #2/0AWG Battery Cables (PAIR)	ea	0.500	\$ 242.99	\$ 28.52	\$ -	\$ 271.51	N/A
PV Arrays - Cables (Battery)	12" #10AWG Battery Cable	ea	0.500	\$ 5.70	\$ 28.52	\$ -	\$ 34.22	N/A
PV Arrays - Cables (Battery)	30" #4AWG Battery Cable	ea	0.500	\$ 18.25	\$ 28.52	\$ -	\$ 46.77	N/A
PV Arrays - Cables (Battery)	36" #2/0AWG Battery Cable	ea	0.500	\$ 57.04	\$ 28.52	\$ -	\$ 85.56	N/A
PV Arrays - Cables (Battery)	36" #4/0AWG Battery Cable	ea	0.500	\$ 52.48	\$ 28.52	\$ -	\$ 81.00	N/A
PV Arrays - Cables (Inter-module)	2 Strand 26" Intermodule Cable	ea	0.019	\$ 11.41	\$ 1.09	\$ -	\$ 12.49	N/A
PV Arrays - Cables (Inter-module)	2 Strand 36" Intermodule Cable	ea	0.027	\$ 14.83	\$ 1.50	\$ -	\$ 16.33	N/A
PV Arrays - Cables (Inter-module)	2 Strand 72" Intermodule Cable	ea	0.053	\$ 20.53	\$ 3.01	\$ -	\$ 23.54	N/A
PV Arrays - Clean Energy Grid Tied Systems	1,840 Watt Grid Tied Solar Power System Includes: -(8) 230W Trina Solar Panels (TSM-230PA05) -(1) MidNite Solar Combiner w/ 600VDC Fuses (MNPV3) -(1) 2,000W Fronius IG Inverter (IG2000) -(1) 30A/240V AC Disconnect, NEMA 3R Outdoor (DU221RB) -(1) DELTA 600V DC Lighting Arrestor (LA602DC) -(1) DELTA 300V AC Lighting Arrestor (LA302R) -(1) 30' #10USE MC4 Output Cable -(1) MC4 Assembly Tool	ea	17.222	\$ 6,063.44	\$ 971.17	\$ -	\$ 7,034.61	1840 Watt
PV Arrays - Clean Energy Grid Tied Systems	10,120 Watt Grid Tied Solar Power System Includes: -(44) 230W Trina Solar Panels (TSM-230PA05) -(1) MidNite Solar Combiner w/ 600VDC Fuses (MNPV6) -(1) 10,000W Fronius IG PLUS Inverter (IG PLUS 10.0-1) -(1) 60A/240V AC Disconnect, NEMA 3R Outdoor (DU222RB) -(1) DELTA 600V DC Lighting Arrestor (LA602DC) -(1) DELTA 300V AC Lighting Arrestor (LA302R) -(4) 30' #10USE MC Output Cable -(1) MC4 Assembly Tool	ea	53.222	\$ 28,417.74	\$ 3,001.23	\$ -	\$ 31,418.97	10120 Watt
PV Arrays - Clean Energy Grid Tied Systems	12,650 Watt Grid Tied Solar Power System Includes: -(55) 230W Trina Solar Panels (TSM-230PA05) -(1) MidNite Solar Combiner w/ 600VDC Fuses (MNPV6) -(1) 11,400W FRONIUS IG Plus Inverter (IG Plus 11.4-1) -(1) 60A/240V AC Disconnect, NEMA 3R Outdoor (DU222RB) -(1) DELTA 600V DC Lighting Arrestor (LA602DC) -(1) DELTA 300V AC Lighting Arrestor (LA302R) -(4) 30' #10USE MC4 Output Cable -(1) MC4 Assembly Tool	ea	64.222	\$ 34,561.03	\$ 3,621.53	\$ -	\$ 38,182.56	12650 Watt

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
PV Arrays - Clean Energy Grid Tied Systems	2,300 Watt Grid Tied Solar Power System Includes: -(10) 230W Trina Solar Panels (TSM-230PA05) -(1) MidNite Solar Combiner w/ 600VDC Fuses (MNPV3) -(1) 3,000W Fronius IG Inverter (IG3000) -(1) 30A/240V AC Disconnect, NEMA 3R Outdoor (DU221RB) -(1) DELTA 600V DC Lighting Arrestor (LA602DC) -(1) DELTA 300V AC Lighting Arrestor (LA302R) -(1) 30' #10USE MC4 Output Cable -(1) MC4 Assembly Tool	ea	19.222	\$ 7,375.38	\$ 1,083.95	\$ -	\$ 8,459.33	2300 Watt
PV Arrays - Clean Energy Grid Tied Systems	3,220 Watt Grid Tied Solar Power System Includes: -(14) 230W Trina Solar Panels (TSM-230PA05) -(1) MidNite Solar Combiner w/ 600VDC Fuses (MNPV3) -(1) 4,000W Fronius IG Inverter (IG4000) -(1) 30A/240V AC Disconnect, NEMA 3R Outdoor (DU221RB) -(1) DELTA 600V DC Lighting Arrestor (LA602DC) -(1) DELTA 300V AC Lighting Arrestor (LA302R) -(2) 30' #10USE MC4 Output Cable -(1) MC4 Assembly Tool	ea	23.222	\$ 10,170.38	\$ 1,309.52	\$ -	\$ 11,479.89	3220 Watt
PV Arrays - Clean Energy Grid Tied Systems	4,600 Watt Grid Tied Solar Power System Includes: -(20) 230W Trina Solar Panels (TSM-230PA05) -(1) MidNite Solar Combiner w/ 600VDC Fuses (MNPV3) -(1) 5,1000W Fronius IG Inverter (IG5100) -(1) 30A/240V AC Disconnect, NEMA 3R Outdoor (DU221RB) -(1) DELTA 600V DC Lighting Arrestor (LA602DC) -(1) DELTA 300V AC Lighting Arrestor (LA302R) -(2) 30' #10USE MC4 Output Cable -(1) MC4 Assembly Tool	ea	29.222	\$ 13,615.64	\$ 1,647.86	\$ -	\$ 15,263.50	4600 Watt
PV Arrays - Clean Energy Grid Tied Systems	5,520 Watt Grid Tied Solar Power System Includes: -(24) 230W Trina Solar Panels (TSM-230PA05) -(1) MidNite Solar Combiner w/ 600VDC Fuses (MNPV3) -(1) 6,000W Fronius IG PLUS Inverter (IG PLUS 6.0-1) -(1) 30A/240V AC Disconnect, NEMA 3R Outdoor (DU221RB) -(1) DELTA 600V DC Lighting Arrestor (LA602DC) -(1) DELTA 300V AC Lighting Arrestor (LA302R) -(2) 30' #10USE MC4 Output Cable -(1) MC4 Assembly Tool	ea	33.222	\$ 16,393.53	\$ 1,873.42	\$ -	\$ 18,266.95	5520 Watt

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
PV Arrays - Clean Energy Grid Tied Systems	8,280 Watt Grid Tied Solar Power System Includes: -(36) 230W Trina Solar Panels (TSM-230PA05) -(1) MidNite Solar Combiner w/ 600VDC Fuses (MNPV6) -(1) 7,500W FRONIUS IG PLUS Inverter (IG PLUS 7.5-1) -(1) 60A/240V AC Disconnect, NEMA 3R Outdoor (DU222RB) -(1) DELTA 600V DC Lighting Arrestor (LA602DC) -(1) DELTA 300V AC Lighting Arrestor (LA302R) -(3) 30' #10USE MC4 Output Cable -(1) MC4 Assembly Tool	ea	45.222	\$ 23,015.97	\$ 2,550.11	\$ -	\$ 25,566.08	8280 Watt
PV Arrays - Off-Grid Power Systems	1080 Watt Remote Power System (24VDC) Includes: -(6) 180 Watt Solar Panels (BP4180T) -(1) 45 Amp Charge Controller w/ Meter (Morningstar TS-45 w/ T-DM) -(12) 110aH AGM Battery (MK 8A31DT) -(1) PSPV Array Combiner & (6) PV Breakers -(6) 30' #10AWG MC Output Cables (ARRAY to COMBINER) -(1) 15' #10AWG Output Cable (COMBINER to CONTROLLER) -(1) 14" #10AWG Output Cable (CONTROLLER to BATTERY) -(6) 12" #4AWG Battery Cables -(10) 20" #4AWG Battery Cables	ea	29.604	\$ 7,580.72	\$ 1,669.40	\$ -	\$ 9,250.13	1080 Watt
PV Arrays - Off-Grid Power Systems	1440 Watt Remote Power System (48VDC) Includes: -(8) 180 Watt Solar Panels (BP4180T) -(1) 45 Amp Charge Controller w/ Meter (Morningstar TS-45 w/ T-DM) -(16) 110aH AGM Battery (MK 8A31DT) -(1) PSPV Array Combiner & (4) PV Breakers -(4) 30' #10AWG MC Output Cables (ARRAY to COMBINER) -(1) 15' #10AWG Output Cable (COMBINER to CONTROLLER) -(1) 14" #10AWG Output Cable (CONTROLLER to BATTERY) -(12) 12" #4AWG Battery Cables -(4) 20" #4AWG Battery Cables	ea	37.828	\$ 9,668.42	\$ 2,133.13	\$ -	\$ 11,801.55	1440 Watt
PV Arrays - Off-Grid Power Systems	170 Watt Remote Power System (12VDC) WIRING DIAGRAM Includes: -(2) 85 Watt Solar Panels (BP485J) -(1) 15 Amp Charge Controller w/ Meter (Morningstar PS-15M) -(2) 110aH AGM Battery (MK 8A31DT) -(1) #10AWG Intermodule Cable (26") -(1) 25' #10AWG Output Cable (PANEL to CONTROLLER) -(1) 14" #10AWG Output Cable (CONTROLLER to BATTERY) -(2) 12" #4AWG Battery Cables	ea	11.032	\$ 1,682.70	\$ 622.07	\$ -	\$ 2,304.78	170 Watt

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
PV Arrays - Off-Grid Power Systems	1800 Watt Remote Power System (48VDC) Includes: -(10) 180 Watt Solar Panels (BP4180T) -(1) 45 Amp Charge Controller w/ Meter (Morningstar TS-45 w/ T-DM) -(20) 110aH AGM Battery (MK 8A31DT) -(1) PSPV Array Combiner & (5) PV Breakers -(5) 30' #10AWG MC Output Cables (ARRAY to COMBINER) -(1) 15' #10AWG Output Cable (COMBINER to CONTROLLER) -(1) 14" #10AWG Output Cable (CONTROLLER to BATTERY) -(15) 12" #4AWG Battery Cables -(8) 20" #4AWG Battery Cables	ea	47.438	\$ 11,984.28	\$ 2,675.06	\$ -	\$ 14,659.33	1800 Watt
PV Arrays - Off-Grid Power Systems	340 Watt Remote Power System (12VDC) WIRING DIAGRAM Includes: -(4) 85 Watt Solar Panels (BP485J) -(1) 30 Amp Charge Controller w/ Meter (Morningstar PS-30M) -(4) 110aH AGM Battery (MK 8A31DT) -(3) 26" #10AWG Intermodule Cable -(1) 25' #10AWG Output Cable (PANEL to CONTROLLER) -(1) 14" #10AWG Output Cable (CONTROLLER to BATTERY) -(6) 12" #4AWG Battery Cables	ea	13.070	\$ 3,502.31	\$ 737.03	\$ -	\$ 4,239.33	340 Watt
PV Arrays - Off-Grid Power Systems	510 Watt Remote Power System (12VDC) WIRING DIAGRAM Includes: -(6) 85 Watt Solar Panels (BP485J) -(1) 45 Amp Charge Controller w/ Meter (Morningstar TS-45 w/ T-DM) -(6) 110aH AGM Battery (MK 8A31DT) -(1) PSPV Array Combiner & (6) PV Breakers -(6) 20' #10AWG Output Cables (ARRAY to COMBINER) -(1) 25' #10AWG Output Cable (COMBINER to CONTROLLER) -(1) 14" #10AWG Output Cable (CONTROLLER to BATTERY) -(10) 12" #4AWG Battery Cables	ea	20.181	\$ 5,162.19	\$ 1,138.03	\$ -	\$ 6,300.23	510 Watt
PV Arrays - Off-Grid Power Systems	720 Watt Remote Power System (24VDC) WIRING DIAGRAM Includes: -(4) 180 Watt Solar Panels (BP4180T) -(1) 30 Amp Charge Controller w/ Meter (Morningstar PS-30M) -(8) 110aH AGM Battery (MK 8A31DT) -(1) PSPV Array Combiner & (4) PV Breakers -(4) 30' #10AWG MC Output Cables (ARRAY to COMBINER) -(1) 15' #10AWG Output Cable (COMBINER to CONTROLLER) -(1) 14" #10AWG Output Cable (CONTROLLER to BATTERY) -(4) 12" #4AWG Battery Cables -(6) 20" #4AWG Battery Cables	ea	22.940	\$ 5,116.56	\$ 1,293.59	\$ -	\$ 6,410.15	720 Watt

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
PV Arrays - Off-Grid Power Systems	85 Watt Remote Power System (12VDC) WIRING DIAGRAM Includes: -(1) 85 Watt Solar Panel (BP485J) -(1) 15 Amp Charge Controller w/ Meter (Morningstar PS-15M) -(1) 110Ah AGM Battery (MK 8A31DT) -(1) 25' #10AWG Output Cable (PANEL to CONTROLLER) -(1) 14" #10AWG Output Cable (CONTROLLER to BATTERY)	ea	4.532	\$ 929.77	\$ 255.53	\$ -	\$ 1,185.30	85 Watt
PV Arrays - Solar Batteries & Enclosures	12 volts, 200 AH@ 20 Hr. Rate, 129 lbs, 20.75"x 8.5"x 10"	ea	1.000	\$ 588.66	\$ 57.61	\$ -	\$ 646.27	N/A
PV Arrays - Solar Batteries & Enclosures	12 volts, 32.5 AH@20 Hr Rate, w/ HANDLE, 24 lbs, 8.32" x 5.13" x 7.25"	ea	1.000	\$ 100.39	\$ 57.61	\$ -	\$ 158.00	N/A
PV Arrays - Solar Batteries & Enclosures	12 volts, 55 AH@ 20 Hr. Rate, 63 AH@100 Hr. Rate, 39 lbs, 9.38"x 5.5"x 9.25"	ea	1.000	\$ 183.67	\$ 57.61	\$ -	\$ 241.28	N/A
PV Arrays - Solar Batteries & Enclosures	12 volts, 92 AH@ 20 Hr. Rate, 63 lbs, 12.75"x 6.75"x 9.88"	ea	1.000	\$ 237.29	\$ 57.61	\$ -	\$ 294.90	N/A
PV Arrays - Solar Batteries & Enclosures	4-CS-17PS Surrette 4V/770Ah @100 Hr Battery	ea	1.000	\$ 707.31	\$ 57.61	\$ -	\$ 764.92	N/A
PV Arrays - Solar Batteries & Enclosures	4-KS-21PS Surrette 4V/1557Ah @100 Hr Battery	ea	1.000	\$ 1,233.22	\$ 57.61	\$ -	\$ 1,290.83	N/A
PV Arrays - Solar Batteries & Enclosures	4-KS-25PS Surrette 4V/1900Ah @100 Hr Battery	ea	1.000	\$ 1,544.67	\$ 57.61	\$ -	\$ 1,602.28	N/A
PV Arrays - Solar Batteries & Enclosures	6V/460Ah @100 Hr Battery	ea	1.000	\$ 366.20	\$ 57.61	\$ -	\$ 423.81	N/A
PV Arrays - Solar Batteries & Enclosures	GEL Battery. Terminal: L, 12 volts, 31.6AH@20 hr Rate, 7.75" x 5.12" x 7.25"	ea	1.000	\$ 88.98	\$ 57.61	\$ -	\$ 146.59	N/A
PV Arrays - Solar Batteries & Enclosures	GEL Battery. Terminal: Z, 12 volts, 50.6AH@20 hr Rate, 9.37" x 5.50" x 9.25"	ea	1.000	\$ 175.69	\$ 57.61	\$ -	\$ 233.30	N/A
PV Arrays - Solar Batteries & Enclosures	GEL Battery. Terminal: Z, 12 volts, 73.6AH@20 hr Rate, 10.87" x 6.75" x 9.87"	ea	1.000	\$ 211.05	\$ 57.61	\$ -	\$ 268.66	N/A
PV Arrays - Solar Batteries & Enclosures	Terminal: FLAG, 12 volts, 100AH @ 20 hr Rate, 12.09" x 6.65" x 9.23"	ea	1.000	\$ 220.18	\$ 57.61	\$ -	\$ 277.79	N/A
PV Arrays - Solar Batteries & Enclosures	Terminal: Z, 12 volts, 183AH@20 hr Rate, 20.75" x 8.5" x 10"	ea	1.000	\$ 427.81	\$ 57.61	\$ -	\$ 485.42	N/A
PV Arrays - Solar Controllers	25A, 12V MPPT charge controller with Digital Display	ea	1.290	\$ 268.09	\$ 74.15	\$ -	\$ 342.24	N/A
PV Arrays - Solar Controllers	30A, 12/24V MPPT charge controller	ea	1.000	\$ 393.58	\$ 57.61	\$ -	\$ 451.19	N/A
PV Arrays - Solar Controllers	30A, 12/24V MPPT charge controller w/ DIGITAL DISPLAY	ea	1.290	\$ 462.03	\$ 74.15	\$ -	\$ 536.18	N/A
PV Arrays - Solar Controllers	30A, 24/48V MPPT charge controller	ea	1.330	\$ 536.18	\$ 76.43	\$ -	\$ 612.62	N/A
PV Arrays - Solar Controllers	50A, 12/24V MPPT charge controller	ea	2.000	\$ 479.14	\$ 115.22	\$ -	\$ 594.37	N/A

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
PV Arrays - Solar Controllers	60 amp Outback Maximum Power Point Tracking (MPPT) charge controller	ea	4.285	\$ 644.56	\$ 169.98	\$ -	\$ 814.54	N/A
PV Arrays - Solar Controllers	80 amp Outback Maximum Power Point Tracking (MPPT) charge controller	ea	4.285	\$ 718.71	\$ 169.98	\$ -	\$ 888.70	N/A
PV Arrays - Solar Controllers	Battery Temp Sensor	ea	2.000	\$ 39.93	\$ 115.22	\$ -	\$ 155.15	N/A
PV Arrays - Solar Controllers	T80 TurboCharger MPPT Charge Controller, 80 amp	ea	2.660	\$ 798.57	\$ 169.98	\$ -	\$ 968.55	N/A
PV Arrays - Solar Controllers	Wired Remote Display for Apollo T80 Controller	ea	2.000	\$ 188.23	\$ 115.22	\$ -	\$ 303.46	N/A
PV Arrays - Solar Controllers	Wireless Remote Display, 100' Range	ea	2.000	\$ 376.47	\$ 115.22	\$ -	\$ 491.69	N/A
PV Arrays - Solar Inverters	2000W, 12VDC, 100 A inverter. Off-Grid Applications. Sealed, 60 amp AC Input, 120 VAC/60 HZ, Turbo Included.	ea	2.698	\$ 1,996.43	\$ 115.22	\$ -	\$ 2,111.65	2000 Watt
PV Arrays - Solar Inverters	2500W, 24VDC, 55 A inverter. Off-Grid Applications. Sealed, 60 amp AC Input, 120 VAC/60 HZ, Turbo Included	ea	2.698	\$ 1,996.43	\$ 115.22	\$ -	\$ 2,111.65	2500 Watt
PV Arrays - Solar Inverters	2800W, 12VDC, 125 A inverter. Vented, 60 amp AC Input, 120 VAC/60 HZ, DC Cover Included	ea	3.579	\$ 2,167.55	\$ 152.87	\$ -	\$ 2,320.42	2800 Watt
PV Arrays - Solar Inverters	4,500 Watt, 48Vdc Hybrid Inverter/Charger	ea	4.000	\$ 3,291.26	\$ 229.30	\$ -	\$ 3,520.56	4500 Watt
PV Arrays - Solar Inverters	6,000 Watt, 48Vdc Hybrid Inverter/Charger	ea	4.000	\$ 3,873.07	\$ 229.30	\$ -	\$ 4,102.38	6000 Watt
PV Arrays - Solar Inverters	6000 Watt, 230VAC/50Hz, 48Vdc Hybrid Inverter/Charger	ea	4.000	\$ 4,124.05	\$ 229.30	\$ -	\$ 4,353.36	6000 Watt
PV Arrays - Solar Panels	10 Watt Solar Module, 16.8 Vmp, 0.5927 Imp	ea	1.000	\$ 101.53	\$ 57.61	\$ -	\$ 159.14	10 Watt
PV Arrays - Solar Panels	12 Watt Solar Module, 18.7 Vmp, 0.62 Imp, 13.3" x 11.68"	ea	1.000	\$ 148.31	\$ 57.61	\$ -	\$ 205.92	12 Watt
PV Arrays - Solar Panels	12 Watt Solar Module, 9.34 Vmp, 1.28 Imp, 13.3" x 11.68"	ea	1.000	\$ 148.31	\$ 57.61	\$ -	\$ 205.92	12 Watt
PV Arrays - Solar Panels	120 Watt Solar Module, 17.3 Vmp, 7.0 Imp, 58.3" x 26.6" x 1.97"	ea	1.000	\$ 471.16	\$ 57.61	\$ -	\$ 528.77	120 Watt
PV Arrays - Solar Panels	125 Watt Solar Module, 18.0 Vmp, 7.11 Imp, 58.3" x 26.6" x 1.97"	ea	1.000	\$ 488.27	\$ 57.61	\$ -	\$ 545.88	125 Watt
PV Arrays - Solar Panels	130 Watt Solar Module, 18.1 Vmp, 7.38 Imp, 58.3" x 26.6" x 1.97"	ea	1.000	\$ 504.24	\$ 57.61	\$ -	\$ 561.85	130 Watt
PV Arrays - Solar Panels	18 Watt Solar Module, 18.7 Vmp, 0.93 Imp, 13.3" x 16.55"	ea	1.000	\$ 222.46	\$ 57.61	\$ -	\$ 280.07	18 Watt
PV Arrays - Solar Panels	20 Watt Solar Module, 16.8 Vmp, 1.19 Imp, 25.82" x 12.04" x 0.71"	ea	1.000	\$ 134.62	\$ 57.61	\$ -	\$ 192.23	20 Watt
PV Arrays - Solar Panels	210W Sanyo A Series Solar Module	ea	1.000	\$ 832.80	\$ 57.61	\$ -	\$ 890.41	210 Watt
PV Arrays - Solar Panels	215W Sanyo A Series Solar Module	ea	1.000	\$ 882.99	\$ 57.61	\$ -	\$ 940.60	215 Watt
PV Arrays - Solar Panels	220 Watt Solar Module, 29 Vmp, 7.6 Imp	ea	1.000	\$ 721.00	\$ 57.61	\$ -	\$ 778.61	220 Watt
PV Arrays - Solar Panels	220W Sanyo A Series Solar Module	ea	1.000	\$ 911.51	\$ 57.61	\$ -	\$ 969.12	220 Watt
PV Arrays - Solar Panels	224 Watt Solar Module, 29.28 Vmp, 7.66 Imp	ea	1.000	\$ 815.68	\$ 57.61	\$ -	\$ 873.29	224 Watt
PV Arrays - Solar Panels	235 Watt Solar Module, 30 Vmp, 7.84 Imp	ea	1.000	\$ 849.91	\$ 57.61	\$ -	\$ 907.52	235 Watt
PV Arrays - Solar Panels	24 Watt Solar Module, 18.7 Vmp, 1.24 Imp, 13.3" x 21.18"	ea	1.000	\$ 285.20	\$ 57.61	\$ -	\$ 342.82	24 Watt
PV Arrays - Solar Panels	30 Watt Solar Module, 17.2 Vmp, 1.74 Imp, 16.77" x 26.77" x 0.71"	ea	1.000	\$ 193.94	\$ 57.61	\$ -	\$ 251.55	30 Watt
PV Arrays - Solar Panels	5 Watt Solar Module, 16.5 Vmp, 0.27 Imp, 9.86" x 10.6" x 0.9"	ea	1.000	\$ 68.45	\$ 57.61	\$ -	\$ 126.06	5 Watt
PV Arrays - Solar Panels	80 Watt Solar Module, 17.3Vmp, 4.67Imp	ea	1.000	\$ 393.58	\$ 57.61	\$ -	\$ 451.19	80 Watt

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
PV Arrays - Solar Panels	90 Watt Solar Module, 18.3 Vmp, 5.04 Imp, 39.9" x 26.3" x 1.38"	ea	1.000	\$ 406.13	\$ 57.61	\$ -	\$ 463.74	90 Watt
Renewables (Wind Energy)	1 HO (High Output) complete system kit, 1400 watt max output, Wind/Solar Tower Kit, includes Wind Turbine, 5 Blades, Cone, Rotor, Tail, Guyed Tower Kit, Charge Controller, 2 Solar Panel Kit, Hardware, and Heavy Duty Grid-Tie Inverter. This is a Hybrid Wind/Solar Power system.	ea	8.000	\$ 7,974.31	\$ 483.71	\$ -	\$ 8,458.01	1400 watts
Renewables (Wind Energy)	2 Turbine complete Grid Tied Wind/Solar Rooftop Home Energy Kit, HO-2.8kW, Maximum Output 2800 watts, includes 2 HO Wind Turbines, Blades, Cones, Rotors, Tails, Roofmount Kits, Charge Controllers, 4 Solar Panel Kit, Hardware, and Grid-Tie Inverter. This is a Hybrid Wind/Solar Power system.	ea	16.000	\$ 12,537.57	\$ 967.41	\$ -	\$ 13,504.98	2800 watts
Renewables (Wind Energy)	3990 watt Wind/Solar Hybrid Turbine Kit, includes Wind Turbine, Blades, Cone, Rotor, Tail, Charge Controller, Hardware, and Grid-Tie Inverter Kit with Advanced Monitoring modules. This is a Wind/Solar Kit with Controllers, Inverter & 776 watts of Solar Panels with hardware. Includes 36ft Monopole steel tower, hinge plate kit, bolt kit, gin-pole kit, Complete system. This is a Hybrid Wind/Solar Power system.	ea	8.000	\$ 7,974.31	\$ 483.71	\$ -	\$ 8,458.01	3990 watts
Renewables (Wind Energy)	Grid Tied Wind/Solar 3 Rooftop Turbine Home Energy Kit, HO-4.2kW, Maximum Output 4200 watts, includes 3 HO Wind Turbines, Blades, Cones, Rotors, Tails, Roofmount Kits, Charge Controllers, 6 Solar Panel Kit, Hardware, and Grid-Tie Inverter. This is a Hybrid Wind/Solar Power system.	ea	24.000	\$ 18,241.65	\$ 1,451.12	\$ -	\$ 19,692.77	4200 watts
Renewables (Wind Energy)	Grid Tied Wind/Solar Rooftop Home Energy Kit, HO-1.4kW, Maximum Output 1400 watts, includes HO Wind Turbine, Blades, Cone, Rotor, Tail, Roofmount Kit, Charge Controller, 2 Solar Panel Kit, Hardware, and Grid-Tie Inverter. This is an HO Hybrid Wind/Solar Power system with maximum power output of 1400 watts	ea	8.000	\$ 7,974.31	\$ 483.71	\$ -	\$ 8,458.01	1400 watts
Geothermal source heat pumps	All geothermal source heat pumps as listed below are equipment only and do not account for drilling, digging, and/or piping as these costs are substantially related to subsurface conditions which can vary widely from location to location							
Geothermal source heat pumps	3 Ton 2 Stage Geothermal Heating And Cooling Heat Pump (Forced Air)	ea	12.308	\$ 6,714.85	\$ 610.79	\$ -	\$ 7,325.64	TBD
Geothermal source heat pumps	4 Ton 2 Stage Geothermal Heating And Cooling Heat Pump (Forced Air)	ea	13.330	\$ 7,106.15	\$ 661.51	\$ -	\$ 7,767.65	TBD
Geothermal source heat pumps	5 Ton 2 Stage Geothermal Heating And Cooling Heat Pump (Forced Air)	ea	17.778	\$ 7,676.55	\$ 882.24	\$ -	\$ 8,558.80	TBD
Geothermal source heat pumps	Geothermal Heat Pump 1.5 Ton (Forced Air)	ea	8.889	\$ 3,648.33	\$ 325.77	\$ -	\$ 3,974.10	26.1 EER / 4.4 COP

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
Geothermal source heat pumps	Geothermal Heat Pump 2 Ton (Forced Air)	ea	9.412	\$ 3,646.05	\$ 344.94	\$ -	\$ 3,990.99	25.8 EER / 4.5 COP
Geothermal source heat pumps	Geothermal Heat Pump 2.5 Ton (Forced Air)	ea	10.000	\$ 4,145.73	\$ 366.49	\$ -	\$ 4,512.21	25.5 EER / 4.8 COP
Geothermal source heat pumps	Geothermal Heat Pump 3 Ton (Forced Air)	ea	11.429	\$ 4,171.97	\$ 418.86	\$ -	\$ 4,590.82	22.3 EER / 4.1 COP
Geothermal source heat pumps	Geothermal Heat Pump 3.5 Ton (Forced Air)	ea	12.308	\$ 4,344.23	\$ 451.07	\$ -	\$ 4,795.30	24.8 EER / 4.5 COP
Geothermal source heat pumps	Geothermal Heat Pump 4 Ton (Forced Air)	ea	13.333	\$ 4,444.62	\$ 488.64	\$ -	\$ 4,933.26	23.8 EER / 4.5 COP
Geothermal source heat pumps	Geothermal Heat Pump 4.5 Ton (Forced Air)	ea	15.556	\$ 4,553.00	\$ 570.09	\$ -	\$ 5,123.09	22.9 EER / 4.4 COP
Geothermal source heat pumps	Geothermal Heat Pump 5 Ton (Forced Air)	ea	17.778	\$ 4,553.00	\$ 651.54	\$ -	\$ 5,204.54	22.9 EER / 4.1 COP
Geothermal source heat pumps	Geothermal Heat Pump System. 2 TON (Forced Air)	ea	10.667	\$ 7,253.31	\$ 390.93	\$ -	\$ 7,644.24	Closed Loop: 27 EER / 4.6 COP Open Loop: 31.5 EER / 5.1 COP
Geothermal source heat pumps	Geothermal Heat Pump System. 3 TON (Forced Air)	ea	13.333	\$ 7,674.27	\$ 488.64	\$ -	\$ 8,162.91	TBD
Geothermal source heat pumps	Geothermal Heat Pump System. 4 TON (Forced Air)	ea	16.667	\$ 8,228.71	\$ 610.82	\$ -	\$ 8,839.53	TBD
Geothermal source heat pumps	Geothermal Heat Pump System. 5 TON (Forced Air)	ea	24.615	\$ 8,759.19	\$ 902.11	\$ -	\$ 9,661.30	TBD
Geothermal source heat pumps	Geothermal Water to Water 37,000 BTU. 3 TON, 23.1 SEER (Radiant Floor)	ea	16.000	\$ 5,927.68	\$ 884.13	\$ -	\$ 6,811.81	23.1 EER / 4.0 COP
Desuperheaters	Aquefier Heat Recovery Unit; 90 Watts / 230V	ea	2.000	\$ 256.68	\$ 85.56	\$ -	\$ 342.24	24,000 - 60,000 BTU/H nominal cooling capacity
Desuperheaters	ECU Waste Heat Water Heater; 113 Watts / 230V	ea	2.000	\$ 256.68	\$ 85.56	\$ -	\$ 342.24	24,000 - 60,000 BTU/H nominal cooling capacity
Desuperheaters	Enviro-Pak	ea	2.000	\$ 458.27	\$ 85.56	\$ -	\$ 543.83	
Desuperheaters	Enviro-Pak	ea	2.000	\$ 486.44	\$ 85.56	\$ -	\$ 572.01	
Combined space/water heating systems	Versa-Flame™ Combined Hydronic Appliance; 35,000-130,000 BTU; 55 gallon tank	ea	4.444	\$ 5,042.41	\$ 190.12	\$ -	\$ 5,232.53	95% TE
Combined space/water heating systems	Versa-Flame™ Combined Hydronic Appliance; 40,000-160,000 BTU; 55 gallon tank	ea	4.444	\$ 5,498.74	\$ 190.12	\$ -	\$ 5,688.85	95% TE
Combined space/water heating systems	Versa-Flame™ Combined Hydronic Appliance; 40,000-199,000 BTU; 55 gallon tank	ea	4.444	\$ 5,901.44	\$ 190.12	\$ -	\$ 6,091.56	95% TE
Combined space/water heating systems	Versa-Hydro™ Combined Hydronic Appliance; 130,000 BTU; 119 gallon tank	ea	8.000	\$ 8,100.94	\$ 342.24	\$ -	\$ 8,443.18	96% TE
Combined space/water heating systems	Versa-Hydro™ Combined Hydronic Appliance; 130,000 BTU; 55 gallon tank	ea	4.444	\$ 6,071.42	\$ 190.12	\$ -	\$ 6,261.54	96% TE

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
Combined space/water heating systems	Versa-Hydro™ Combined Hydronic Appliance; 130,000 BTU; 80 gallon tank	ea	5.000	\$ 7,038.84	\$ 213.90	\$ -	\$ 7,252.74	96% TE
Combined space/water heating systems	Versa-Hydro™ Combined Hydronic Appliance; 199,000 BTU; 119 gallon tank	ea	8.000	\$ 8,922.33	\$ 342.24	\$ -	\$ 9,264.57	96% TE
Combined space/water heating systems	Versa-Hydro™ Combined Hydronic Appliance; 199,000 BTU; 55 gallon tank	ea	4.444	\$ 7,038.84	\$ 190.12	\$ -	\$ 7,228.95	96% TE
Combined space/water heating systems	Versa-Hydro™ Combined Hydronic Appliance; 199,000 BTU; 80 gallon tank	ea	5.000	\$ 7,816.87	\$ 213.90	\$ -	\$ 8,030.78	96% TE
Ductless systems	(12+12) Dual Zone 21 SEER Ductless Heat Pump w/ Two 12,000 BTU Indoor Units	ea	15.000	\$ 2,627.30	\$ 744.38	\$ -	\$ 3,371.68	21 SEER / 8.5 HSPF
Ductless systems	(12+12) Mr. Slim 18 SEER Dual Zone Ductless Mini Split Heat Pump w/ Two 12,000 BTU Indoor Units	ea	13.350	\$ 2,962.70	\$ 662.50	\$ -	\$ 3,625.20	18 SEER / 7.7 HSPF
Ductless systems	(12+12+12) Mr. Slim 18 SEER Tri Zone Ductless Mini Split Heat Pump w/ Three 12,000 BTU Indoor Units	ea	18.000	\$ 4,644.26	\$ 893.26	\$ -	\$ 5,537.52	18 SEER / 8.5 HSPF
Ductless systems	(15+15) Mr. Slim 17.5 SEER Dual Zone Ductless Mini Split Heat Pump w/ Two 15,000 BTU Indoor Units	ea	15.000	\$ 3,958.63	\$ 744.38	\$ -	\$ 4,703.02	17.5 SEER / 7.7 HSPF
Ductless systems	(18+18) Dual Zone 17.5 SEER Art Cool Ductless Heat Pump w/ Two 18,000 BTU Indoor Units	sf	17.100	\$ 4,163.98	\$ 848.60	\$ -	\$ 5,012.58	17.5 SEER / 10.5 HSPF
Ductless systems	(9+12) Dual Zone 21 SEER Art Cool Ductless Heat Pump w/ One 9,000 and One 12,000 BTU Indoor Units	ea	14.000	\$ 2,685.48	\$ 694.76	\$ -	\$ 3,380.24	21 SEER / 15 HSPF
Ductless systems	(9+12+12) Tri Zone 21.7 SEER Art Cool Ductless Heat Pump w/ One 9,000 and Two 12,000 BTU Indoor Units	ea	14.000	\$ 3,567.33	\$ 694.76	\$ -	\$ 4,262.09	21.7 SEER / 9.4 HSPF
Ductless systems	(9+9) Dual Zone 21 SEER Art Cool Ductless Heat Pump w/ Two 9,000 BTU Indoor Units	ea	12.000	\$ 2,636.43	\$ 595.51	\$ -	\$ 3,231.93	21 SEER / 16 HSPF
Ductless systems	(9+9) Mr. Slim 18 SEER Dual Zone Ductless Mini Split Heat Pump w/ Two 9,000 BTU Indoor Units	ea	12.000	\$ 2,808.69	\$ 595.51	\$ -	\$ 3,404.20	18 SEER / 7.7 HSPF
Ductless systems	(9+9+12) Mr. Slim 17.5 SEER Tri Zone Ductless Mini Split Heat Pump w/ Two 9,000 and One 12,000 BTU Indoor Units	ea	17.000	\$ 4,167.40	\$ 843.63	\$ -	\$ 5,011.04	17.5 SEER / 7.7 HSPF
Ductless systems	(9+9+12+12) Mr. Slim 18 SEER Quad Zone Ductless Mini Split Heat Pump Two 9,000 BTU / Two 12,000 BTU	ea	21.500	\$ 5,018.45	\$ 1,066.95	\$ -	\$ 6,085.40	18 SEER / 7.7 HSPF
Ductless systems	(9+9+18) Mr. Slim 17.5 SEER Tri Zone Ductless Mini Split Heat Pump w/ Two 9,000 and One 18,000 BTU Indoor Units	ea	17.500	\$ 4,353.36	\$ 868.45	\$ -	\$ 5,221.80	17.5 SEER / 10.5 HSPF
Ductless systems	(9+9+9) Tri Zone 21.7 SEER Ductless Heat Pump w/ Three 9,000 BTU Indoor Units	ea	12.000	\$ 3,239.92	\$ 595.51	\$ -	\$ 3,835.42	21.7 SEER / 8.5 HSPF
Ductless systems	(9+9+9+12) Mr. Slim 18 SEER Quad Zone Ductless Mini Split Heat Pump Three 9,000 BTU / One 12,000 BTU	ea	21.000	\$ 4,940.88	\$ 1,042.14	\$ -	\$ 5,983.01	18 SEER / 7.7 HSPF
Ductless systems	(9+9+9+9) Mr. Slim 18 SEER Quad Zone Ductless Mini Split Heat Pump w/ four 9,000 BTU Indoor Units	ea	20.000	\$ 4,862.16	\$ 992.51	\$ -	\$ 5,854.67	18 SEER / 7.7 HSPF
Ductless systems	(9+9+9+9) Quad Zone 17.5 SEER Art Cool Ductless Heat Pump w/ Four 9,000 BTU Indoor Units	ea	20.000	\$ 4,741.23	\$ 992.51	\$ -	\$ 5,733.74	17.5 SEER / 10.5 HSPF
Ductless systems	12,000 BTU 20 SEER Art Cool Heat Pump Ductless Air Conditioner	ea	10.000	\$ 1,515.00	\$ 553.30	\$ -	\$ 2,068.30	20 SEER / N/A
Ductless systems	24,000 BTU 20 SEER Art Cool Heat Pump Ductless Air Conditioner	ea	11.400	\$ 2,165.27	\$ 633.15	\$ -	\$ 2,798.42	20 SEER / 10 HSPF / 12.5 EER

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
Ductless systems	9,000 BTU 19 SEER Art Cool Heat Pump Single Zone Ductless Air Conditioner	ea	10.000	\$ 906.95	\$ 496.26	\$ -	\$ 1,403.20	19 SEER / 9.2 HSPF
Ductless systems	9+9+9) Mr. Slim 17.5 SEER Tri Zone Ductless Mini Split Heat Pump w/ Three 9,000 BTU Indoor Units	ea	16.000	\$ 3,966.62	\$ 794.01	\$ -	\$ 4,760.63	17.5 SEER / 7.7 HSPF
Ductless systems	DUAL ZONE 12+9 kBTU AIR CONDITIONING SYSTEM, 19000 BTU	ea	13.450	\$ 3,043.25	\$ 667.46	\$ -	\$ 3,710.72	16.5 SEER / 12.5 EER / 8.8 HSPF
Ductless systems	DUAL ZONE 18+12 kBTU HEAT PUMP SYSTEM	ea	16.400	\$ 3,946.14	\$ 813.86	\$ -	\$ 4,760.00	16.5 SEER / 11.4 EER / 8.4 HSPF
Ductless systems	DUAL ZONE 9+9 kBTU AIR CONDITIONING SYSTEM, 18000 BTU	ea	12.000	\$ 3,014.71	\$ 595.51	\$ -	\$ 3,610.22	16.5 SEER / 12.5 EER / 8.8 HSPF
Ductless systems	Halcyon 12,000 BTU 22 SEER Heat Pump Single Zone Ductless Mini Split Air Conditioner	ea	10.000	\$ 1,682.70	\$ 553.30	\$ -	\$ 2,236.00	22 SEER / 11 HSPF
Ductless systems	Halcyon 12,000 BTU 25 SEER Heat Pump Single Zone Ductless Mini Split Air Conditioner	ea	10.000	\$ 1,819.60	\$ 553.30	\$ -	\$ 2,372.90	25 SEER / 11 HSPF
Ductless systems	Halcyon 18,000 BTU 19 SEER Single Zone Ductless Air Conditioner	ea	10.000	\$ 2,013.54	\$ 633.15	\$ -	\$ 2,646.69	19 SEER / N/A
Ductless systems	Halcyon 22,000 BTU 18 SEER Heat Pump Single Zone Ductless Mini Split Air Conditioner	ea	11.400	\$ 2,565.70	\$ 633.15	\$ -	\$ 3,198.85	18 SEER / 10 HSPF
Ductless systems	Halcyon 24,200 BTU 17.5 SEER Single Zone Ductless Air Conditioner	ea	11.400	\$ 2,116.21	\$ 633.15	\$ -	\$ 2,749.37	17.5 SEER / N/A
Ductless systems	Halcyon 30,700 BTU 16.5 SEER Single Zone Ductless Air Conditioner	ea	13.400	\$ 2,595.36	\$ 741.53	\$ -	\$ 3,336.89	16.5 SEER / N/A
Ductless systems	Halcyon 33,100 BTU 15.5 SEER Single Zone Ductless Air Conditioner	ea	13.400	\$ 3,371.11	\$ 741.53	\$ -	\$ 4,112.64	15.5 SEER / N/A
Ductless systems	Halcyon 9,000 BTU 23 SEER Heat Pump Single Zone Ductless Mini Split Air Conditioner	ea	8.000	\$ 1,568.62	\$ 496.26	\$ -	\$ 2,064.88	23 SEER/ 11 HSPF
Ductless systems	Halcyon 9,000 BTU 26 SEER Heat Pump Single Zone Ductless Mini Split Air Conditioner	ea	8.000	\$ 1,653.04	\$ 496.26	\$ -	\$ 2,149.30	26 SEER / 12 HSPF
Ductless systems	Halcyon 9,700 BTU 14.3 SEER Single Zone Ductless Air Conditioner	ea	8.900	\$ 1,078.07	\$ 552.08	\$ -	\$ 1,630.15	14.3 SEER / 8.2 HSPF
Ductless systems	QUAD ZONE 7+7+7+7 kBTU AIR CONDITIONING SYSTEM	ea	16.000	\$ 4,069.11	\$ 794.01	\$ -	\$ 4,863.12	16.2 SEER / 9.9 EER
Ductless systems	QUAD ZONE 7+7+7+7 kBTU HEAT PUMP SYSTEM	ea	16.000	\$ 4,517.03	\$ 794.01	\$ -	\$ 5,311.04	16.5 SEER / 11.4 EER / 8.4 HSPF
Ductless systems	SINGLE ZONE 12000 BTU 22 SEER HEAT PUMP	ea	10.000	\$ 2,198.84	\$ 553.30	\$ -	\$ 2,752.14	22 SEER / N/A
Ductless systems	SINGLE ZONE 17 SEER 24000 BTU AIR CONDITIONING SYSTEM	ea	11.400	\$ 2,090.02	\$ 565.73	\$ -	\$ 2,655.75	17 SEER; 9.8 EER
Ductless systems	SINGLE ZONE 17 SEER 24000 BTU HEAT PUMP SYSTEM	ea	11.400	\$ 2,488.67	\$ 565.73	\$ -	\$ 3,054.40	17 SEER; 10.3 EER; 8.5 HSPF
Solar assisted water heaters	Standard Solar Hot Water Tube for Jacques Giordano Showers	ea	1.000	\$ 274.83	\$ 57.61	\$ -	\$ 332.45	N/A
Air system balancing	Duct Pressure Test	ea	4.933	\$ -	\$ 211.05	\$ -	\$ 211.05	N/A
Air system balancing	Duct Testing	ea	12.000	\$ -	\$ 513.37	\$ -	\$ 513.37	N/A
Air system balancing	Duct Testing - Residential Alterations	ea	8.000	\$ -	\$ 342.24	\$ -	\$ 342.24	N/A
Air system balancing	Duct Testing - Residential New Construction	ea	8.667	\$ -	\$ 370.77	\$ -	\$ 370.77	N/A
Commissioning	Blower Door Test - One-Off Visit to Site Testing	ea	2.606	\$ -	\$ 275.00	\$ -	\$ 275.00	N/A

Component	Tag	Cost Unit	Labor Hours	Material	Installation	Equipment	Total Cost	Energy Measure
Commissioning	Blower Door Test - Testing when combined with equipment install	ea	1.279	\$ -	\$ 135.00	\$ -	\$ 135.00	N/A
Commissioning	Duct Blaster Test - One-Off Visit to Site Testing	ea	2.606	\$ -	\$ 275.00	\$ -	\$ 275.00	N/A
Commissioning	Duct Blaster Test - Testing when combined with equipment install	ea	1.279	\$ -	\$ 135.00	\$ -	\$ 135.00	N/A
Commissioning	RESNET Home Energy Rating (HERs) and Energy Star Assessment	ea	7.027	\$ -	\$ 741.53	\$ -	\$ 741.53	N/A
Commissioning	RESNET Home Energy Rating (HERs) Assessment	ea	4.865	\$ -	\$ 513.37	\$ -	\$ 513.37	N/A
Refrigerant charge testing	Refrigerant Charge Verification - quote#1	ea	5.333	\$ -	\$ 228.16	\$ -	\$ 228.16	N/A
Refrigerant charge testing	Refrigerant Charge Verification - quote#2	ea	8.000	\$ -	\$ 342.24	\$ -	\$ 342.24	N/A
Refrigerant charge testing	Refrigerant Charge Verification - quote#3	ea	4.933	\$ -	\$ 211.05	\$ -	\$ 211.05	N/A
Lighting controls	1000W/VA Single-Pole/Multi-Location Dimmer	ea	0.667	\$ 217.21	\$ 25.30	\$ -	\$ 242.51	1000 Watt
Lighting controls	120V - 347V 1000 Sq. Ft. Dual Tech Ceiling Occupancy Sensor	ea	1.231	\$ 143.73	\$ 46.69	\$ -	\$ 190.43	N/A
Lighting controls	120V - 347V Passive Infrared Ceiling Occupancy Sensor	ea	1.143	\$ 87.83	\$ 43.36	\$ -	\$ 131.19	N/A
Lighting controls	120-Volt Single-Pole Rotary Dimmer	ea	0.500	\$ 14.20	\$ 18.97	\$ -	\$ 33.17	N/A
Lighting controls	12-Hour Mechanical Countdown Timer Switch	ea	0.250	\$ 13.64	\$ 9.48	\$ -	\$ 23.13	N/A
Lighting controls	24V 1200 Sq. Ft. PIR Ceiling Occupancy Sensor	ea	1.231	\$ 87.83	\$ 46.69	\$ -	\$ 134.53	N/A
Lighting controls	500W PIR Occupancy Sensor Dimmer Switch, Multi-Way	ea	1.333	\$ 39.92	\$ 50.56	\$ -	\$ 90.48	500 Watt
Lighting controls	500W Single-Pole/Multi-Location Electronic Low-Voltage Dimmer	ea	0.667	\$ 246.42	\$ 25.30	\$ -	\$ 271.72	500 Watt
Lighting controls	600W/VA Single-Pole/Multi-Location Dimmer	ea	0.667	\$ 148.29	\$ 25.30	\$ -	\$ 173.60	600 Watt
Lighting controls	600W/VA Single-Pole/Multi-Location Dimmer w/ Neutral	ea	0.667	\$ 217.21	\$ 25.30	\$ -	\$ 242.51	600 Watt
Lighting controls	800W 120V Wall Occupancy Sensor with Manual Off Switch	ea	1.143	\$ 45.62	\$ 43.36	\$ -	\$ 88.98	800 Watt
Lighting controls	Countdown Wall Switch Timer (Non-Dimming)	ea	1.000	\$ 68.44	\$ 37.93	\$ -	\$ 106.37	N/A
Lighting controls	Decora 15A 120V Occupancy Sensor Wall Switch	ea	1.231	\$ 23.36	\$ 46.69	\$ -	\$ 70.06	N/A
Lighting controls	Decora 15A 120V Occupancy Sensor Wall Switch	ea	1.231	\$ 23.38	\$ 46.69	\$ -	\$ 70.07	N/A
Lighting controls	Decora Dual Circuit Wall Switch Occupancy Sensor	ea	1.231	\$ 84.18	\$ 46.69	\$ -	\$ 130.88	N/A
Lighting controls	Decora Infrared In-Wall Occupancy Sensor	ea	1.143	\$ 71.86	\$ 43.36	\$ -	\$ 115.22	N/A
Lighting controls	Dual Function Fan Control Switch	ea	1.000	\$ 22.80	\$ 37.93	\$ -	\$ 60.74	N/A
Lighting controls	Dual Relay Multi-TechNology Wall Switch Occupancy Sensor	ea	1.231	\$ 124.22	\$ 46.69	\$ -	\$ 170.92	N/A
Lighting controls	Econo Switch 7 Day Programmable Solar Timer Switch for Lights	ea	1.333	\$ 49.04	\$ 50.56	\$ -	\$ 99.61	500 Watt
Lighting controls	Maestro 600 Watt Single-Pole Digital Fade Dimmer White	ea	0.500	\$ 34.19	\$ 18.97	\$ -	\$ 53.16	600 Watt
Lighting controls	Maestro Countdown eco-timer Switch	ea	1.000	\$ 54.76	\$ 37.93	\$ -	\$ 92.69	600 Watt
Lighting controls	Maestro Electronic Push Button Timer	ea	1.000	\$ 50.25	\$ 37.93	\$ -	\$ 88.19	600 Watt
Lighting controls	Maestro Fan Control and Dimmer Kit	ea	1.000	\$ 57.03	\$ 37.93	\$ -	\$ 94.96	300 Watt
Lighting controls	Radio Power Saver Wireless Occupancy Sensor and Vacancy	ea	1.143	\$ 88.97	\$ 43.36	\$ -	\$ 132.33	N/A
Lighting controls	Skylark 600 Watt Single-Pole Dimmer	ea	0.500	\$ 20.50	\$ 18.97	\$ -	\$ 39.47	600 Watt
Lighting controls	Skylark Contour 600 Watt Single-Pole Light Almond Dimmer	ea	0.500	\$ 20.50	\$ 18.97	\$ -	\$ 39.47	600 Watt
Lighting controls	Skylark Contour Eco-Dim 600 Watt White Single-Pole 3-Way	ea	0.667	\$ 26.15	\$ 25.30	\$ -	\$ 51.45	600 Watt
Lighting controls	SwitchLinc Dimmer - INSTEON Remote Control Dimmer	ea	1.231	\$ 48.99	\$ 46.69	\$ -	\$ 95.68	N/A
Lighting controls	Wireless Lighting Control 3-Way Dimmer Kit	ea	0.667	\$ 91.25	\$ 25.30	\$ -	\$ 116.55	500 Watt
Lighting controls	Wireless Lighting Control 3-Way Switch Kit	ea	0.667	\$ 73.56	\$ 25.30	\$ -	\$ 98.86	N/A
Lighting controls	Wireless Lighting Control Dimmer Switch	ea	0.667	\$ 53.61	\$ 25.30	\$ -	\$ 78.91	N/A

APPENDIX F

GEO-MODIFIER DATA TABLES

The compiled cost data for energy efficiency codes and the estimated cost for a Prototype Single-Family Home have been applied geographical cost modifiers for the purposes of comparing costs both across and within Climate Zones. For this cost illustration the foundation type estimate of *'Heated Basement'* has been used. The estimate has been modified in accordance with the 2009 IECC for each Climate Zone to establish a baseline for application of factors.

The current geo-modifiers are based upon RSMMeans data and may vary due to unique local conditions and requirements.

Climate Zone #1	Cost Model	Climate Zone #2	Cost Model	Climate Zone #3	Cost Model	Climate Zone #4	Cost Model
National Baseline	227,738	National Baseline	227,738	National Baseline	227,738	National Baseline	227,738
Zone Baseline	208,829	Zone Baseline	188,502	Zone Baseline	222,880	Zone Baseline	232,248
Honolulu, HI	255,363	Phoenix, AZ	203,370	San Francisco, CA	277,385	Philadelphia, PA	260,305
Miami, FL	197,677	Houston, TX	201,548	Sacramento, CA	248,007	Seattle, WA	237,076
San Juan, Puerto Rico	178,319	New Orleans, LA	197,221	San Diego, CA	237,531	Portland, OR	232,749
		Mobile, AL	183,557	Atlanta, GA	203,598	Washington, DC	223,411
		Austin, TX	182,874	Little Rock, AR	195,855	Louisville, KY	207,697
		Biloxi, MS	178,775	El Paso, TX	174,903		
		Tallahassee, FL	172,170				

The compiled cost data for energy efficiency codes and the estimated cost for a Prototype Single-Family Home have been applied geographical cost modifiers for the purposes of comparing costs both across and within Climate Zones. For this cost illustration the foundation type estimate of *'Heated Basement'* has been used. The estimate has been modified in accordance with the 2009 IECC for each Climate Zone to establish a baseline for application of factors.

The current geo-modifiers are based upon RSMMeans data and may vary due to unique local conditions and requirements.

Climate Zone #5	Cost Model	Climate Zone #6	Cost Model	Climate Zone #7	Cost Model	Climate Zone #8	Cost Model
National Baseline	227,738	National Baseline	227,738	National Baseline	227,738	National Baseline	227,738
Zone Baseline	230,575	Zone Baseline	210,072	Zone Baseline	236,165	Zone Baseline	282,168
Boston, MA	262,810	St. Paul, MN	250,740	Juneau, AK	279,663	Fairbanks, AK	282,168
Chicago, IL	258,028	Green Bay, WI	220,451	Fargo, ND	192,667		
Hartford, CT	244,363	Boise, ID	205,648				
Detroit, MI	239,125	Billings, MT	203,826				
Providence, RI	236,848	Richmond, VA	202,915				
Las Vegas, NV	231,838	Cheyenne, WY	196,083				
Yakima, WA	224,095	Burlington, VT	190,845				
Albany, NY	218,173						
Denver, CO	216,579						
Omaha, NE	203,826						
Salt Lake City, UT	200,637						

Document Revision Log		
Rev Number	Revision Details	Date
0		08/13/2011
1	Updated Baseline Cost Estimate, added 'Prototype Alternates' and Energy Measures in Appendix 'C'	08/31/2011
2	Added subtasks 4, 5 and 6; included five foundation types for Prototype Home	09/20/2011
3	Updated cost data and Prototype Home Estimate. Included PNNL review comments	09/30/2011
4	Removed Copyright statement on page 2, only	01/12/2012
5	Major revisions throughout in response to Memo dated 02/12/2012	02/29/2012
5.3	Revisions in response to comments regarding Rev 5	03/02/2012
6	Revisions in response to comments regard Rev 5.3	06/29/2012

AUTHORIZATION
Approved for issue
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Date.....06/29/2012.....

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CONSTRUCTIVE EXPERTISE

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