



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

Residential Energy Efficiency Measures  
Location Factors

21<sup>st</sup> December 2011

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### Disclaimer

This document and its contents have been prepared and are intended solely for the client's information and use in relation to Faithful+Gould's submittal of services and deliverables as described in PNNL Work Order 2.

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## 1. INTRODUCTION AND PURPOSE

- 1.1. Faithful+Gould has been retained by Pacific Northwest National Laboratories (PNNL) as described in the Statement of Work; Work Order 2, to develop location modifiers for residential construction that may be applied to the Baseline Prototype cost model home completed in Work Order 1 or nationwide average construction costs.
- 1.2. The purpose of this task is to establish independent cost indices for a list of sampled locations, developed from various data sources. The location factors shall take into account the following criteria
  - 1.2.1. State Factors
  - 1.2.2. Locality Factors
  - 1.2.3. Urban/Rural Factors
  - 1.2.4. Climate Zone Factors

## 2. LOCATION FACTOR METHODOLOGY

### 2.1 OVERVIEW

- 2.1.1 Cost data has been collected from multiple sources to develop location indices. The data has been collected for 122 cities nationwide and include representatives from every State and the District of Columbia. A listing of urban locations, by state, is included in **Table 1**, Appendix A. The following territories have not been included: Guam, Puerto Rico, Virgin Islands, Northern Marianas Islands and American Samoa.
- 2.1.2 The calculated Location Indices represent state and local modifiers.
- 2.1.3 The resultant indices have been developed from collated data that includes
  - 2.1.3.1 Union wage rates, including fringe benefits
  - 2.1.3.2 Davis-Bacon wage rates, including fringe benefits where cited in Wage Determinations
  - 2.1.3.3 Wage data from the 2008 Bureau of Labor Statistics (BLS) as provided by Richardson's costdataonline on 3<sup>rd</sup> and 4<sup>th</sup> October 2011
  - 2.1.3.4 Material commodity pricing that comprise a 'basket of goods' for items typically found in residential construction
  - 2.1.3.5 Location indices from published sources including 2011 RSMeans, 2010 Compass International and the A.C.E. Guide
- 2.1.4 Estimates of the Prototype Home contained in Work Order 1 (Heated Basement) have been performed by various Faithful+Gould offices as a basis of comparison against the collected data and the resultant location factors.

### 2.2 COST DATA COLLECTION PROCESS

- 2.2.1 Data for labor and material has been collected to ensure that indices can be presented for every state and climate zone with at least one urban location. The indices in many

cases cover multiple locations within a single state and climate zone. Indices identified by climate zone, indicate whether the location is Moist, Dry or Marine. A listing of urban locations, by Climate Zone, is included in **Table 2**, Appendix A.

- 2.2.2 For the purposes of this study, we proposed to use the Census 2000 classification to determine delineation between Urban and Rural. Generally, Urban is any area with a population density of at least 1000 people per square mile. Areas adjacent to this that have at least 500 people per square mile shall also be categorized as urban. Rural areas are defined as any area that is not classified as urban and shall be any place not listed on UA Central Places and UC Central Place for Census 2000. The Central Place table can be found at <http://www.census.gov/geo/www/ua/ctrlplace.html>
- 2.2.3 Sources for collection of labor data include Union, Davis-Bacon and BLS wage rates. Labor occupation classifications include those considered typical to residential construction activities. Table 3 below includes a sample listing of labor classifications.

**TABLE 3 - LABOR CLASSIFICATIONS**

Brick masons and Block masons
Carpenters
Cement Masons and Concrete Finishers
Construction Laborers
Electricians
Insulation Workers - Mechanical
Millwrights
Operating Engineers and Other Construction Equipment Operators
Painters - Construction and Maintenance
Plasterers and Stucco Masons
Plumbers, Pipefitters and Steamfitters
Sheet Metal Workers
Structural Iron and Steel Workers
Truck Drivers - Heavy and Tractor-Trailer

2.2.4 The collection of material data has involved the creation of a 'basket of goods' which have been priced for each urban location. The items in the basket have included:

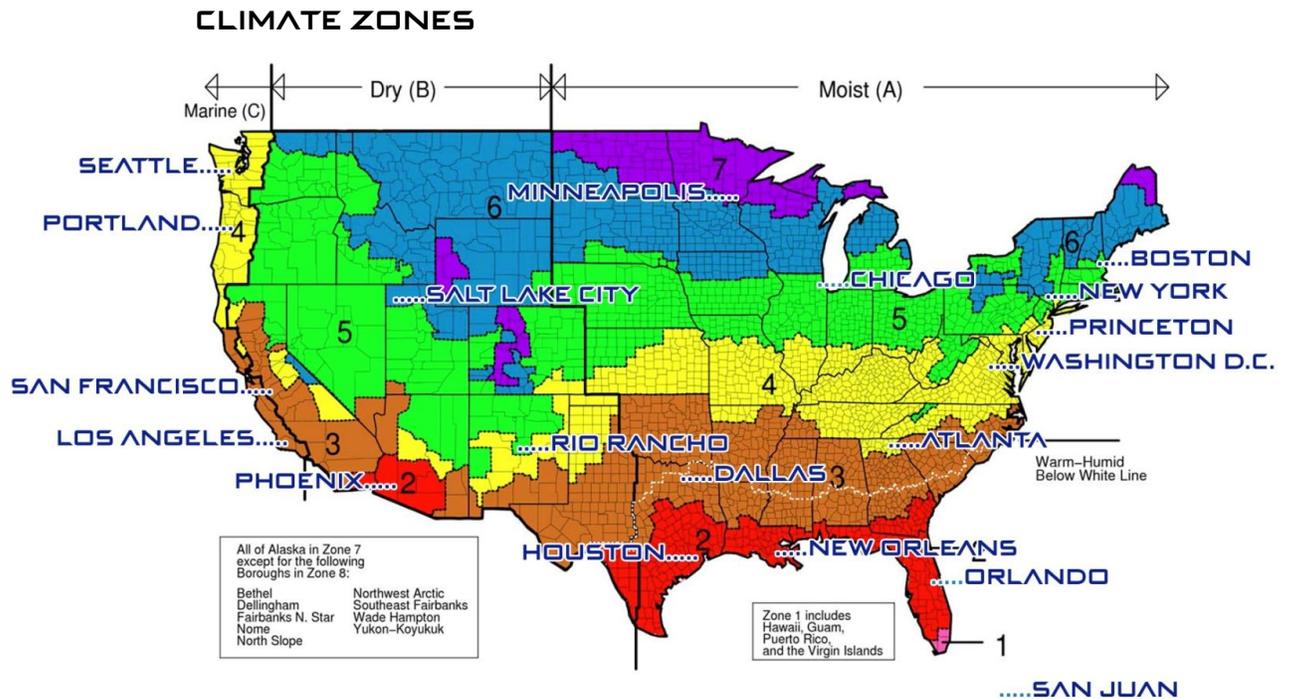
**TABLE 4 - 'BASKET OF GOODS'**

				
SHEETROCK Brand Ultralight 48 in. x 12 ft. x 1/2 in. Gypsum Panel	Owens Corning EcoTouch R- 13 Kraft 3-1/2 in. x 23 in. x 93 in. Batts in Bag Insulation	GE 50 gal. Tall 12 Year 40,000 BTU Natural Gas Water Heater	7/16 in. x 4 ft. x 8 ft. OSB Sheathing	3/8 in. x 2 ft. x 4 ft. BC Plywood
				
James Hardie HardiePlank HZ10 144 in. Fiber Cement Lap Siding	Wheatland 3/4 in. x 10 ft. Electrical Metallic Tubing	Southwire 250 ft. White 14/3 NM-B Cable	GAF 25-Year Royal Sovereign Slate 3-Tab Shingles	Block USA 8 in. x 8 in. x 16 in. Concrete Block

2.2.5 Cost estimates of the Prototype Home contained in Work Order 1 (Heated Basement) have been performed for the following locations.

**TABLE 5**

Houston, TX	Los Angeles, CA
Minneapolis, MN	Trenton, NJ
New Orleans, LA	Alexandria, VA
Chicago, IL	Boston, MA
Phoenix, AZ	New York, NY



### 3. LOCATION INDICES AND ANALYSIS

3.1 Faithful+Gould has calculated composite location indices for the 122 urban locations as shown in **Table 6** below. These indices include data from the aforementioned labor and material sources, plus information extracted from publications. It is intended that the indices are applied to the total estimated national average costs to derive the modified costs for that particular location.

**TABLE 6 - FAITHFUL+GOULD COMPOSITE LOCATION INDICES**

3.2 The average index for each Climate Zone is shown for informational purposes only in **Table 1**, Appendix B. Based upon the sampled urban areas within each Climate Zone, the low to high range of indices are shown below with its' respective location.

	City	State	Climate Zone	F+G Composite Index		City	State	Climate Zone	F+G Composite Index
1	Anchorage	AK	7	134.01	62	Kansas City	MO	4A	103.67
2	Fairbanks	AK	8	133.26	63	St Louis	MO	4A	104.48
3	Birmingham	AL	3A	85.14	64	Jackson	MS	2A	83.30
4	Huntsville	AL	3A	84.34	65	Billings	MT	6B	93.64
5	Mobile	AL	2A	85.87	66	Charlotte	NC	3A	83.86
6	Montgomery	AL	3A	81.60	67	Raleigh	NC	4A	83.81
7	Little Rock	AR	3A	83.89	68	Fargo	ND	7	88.75
8	Phoenix	AZ	2B	92.76	69	Omaha	NE	5A	90.53
9	Fremont	CA	3C	121.82	70	Manchester	NH	5A	96.67
10	Fresno	CA	3B	110.84	71	Newark	NJ	4A	116.97
11	Long Beach	CA	3B	110.50	72	Trenton	NJ	5A	114.18
12	Los Angeles	CA	3B	112.20	73	Albuquerque	NM	4B	90.23
13	Oakland	CA	3C	121.41	74	Santa Fe	NM	5B	90.45
14	Riverside	CA	3B	109.51	75	Las Vegas	NV	3B	106.31
15	Sacramento	CA	3B	113.22	76	Albany	NY	5A	104.17
16	San Diego	CA	3B	107.69	77	Buffalo	NY	5A	105.93
17	San Francisco	CA	3C	124.34	78	New York	NY	4A	135.73
18	Santa Ana	CA	3B	110.43	79	Rochester	NY	6A	103.19
19	Denver	CO	5B	97.15	80	Schenectady	NY	5A	104.67
20	Hartford	CT	5A	111.89	81	Syracuse	NY	5A	102.03
21	New Haven	CT	5A	111.86	82	Akron	OH	5A	98.54
22	Stamford	CT	5A	113.35	83	Cincinnati	OH	4A	94.28
23	Washington DC	DC	4A	99.92	84	Cleveland	OH	5A	101.72
24	Wilmington	DE	4A	105.34	85	Columbus	OH	5A	95.24
25	Jacksonville	FL	2A	87.70	86	Dayton	OH	5A	93.95
26	Miami	FL	1A	88.27	87	Youngstown	OH	5A	96.53
27	St Petersburg	FL	2A	86.58	88	Oklahoma City	OK	3A	86.33
28	Tampa	FL	2A	89.55	89	Tulsa	OK	3A	83.98
29	Titusville	FL	2A	89.82	90	Portland	OR	4C	103.80
30	Atlanta	GA	3A	90.59	91	Erie	PA	5A	98.32
31	Savannah	GA	2A	85.88	92	Philadelphia	PA	4A	115.95
32	Honolulu	HI	1A	128.76	93	Pittsburgh	PA	5A	103.29
33	Des Moines	IA	5A	94.64	94	Reading	PA	5A	101.08
34	Boise	ID	6B	91.80	95	Scranton	PA	5A	99.67
35	Chicago	IL	5A	117.40	96	York	PA	4A	96.42
36	Peoria	IL	5A	103.74	97	Providence	RI	5A	108.20
37	Rock Island	IL	5A	99.83	98	Columbia	SC	3A	81.44
38	Rockford	IL	5A	106.47	99	Spartanburg	SC	3A	80.17
39	Evansville	IN	4A	96.33	100	Sioux Falls	SD	6A	82.93
40	Hammond	IN	5A	106.95	101	Chattanooga	TN	4A	85.87
41	Indianapolis	IN	5A	97.83	102	Knoxville	TN	4A	85.08
42	South Bend	IN	5A	94.87	103	Memphis	TN	3A	86.89
43	Topeka	KS	4A	88.20	104	Nashville	TN	4A	87.42
44	Wichita	KS	5A	85.50	105	Corpus Christi	TX	2A	83.41
45	Louisville	KY	4A	92.86	106	Dallas	TX	3A	85.28
46	New Orleans	LA	2A	88.15	107	El Paso	TX	3B	79.81
47	Shreveport	LA	3A	82.39	108	Fort Worth	TX	3A	84.32
48	Boston	MA	5A	120.10	109	Houston	TX	2A	87.35
49	New Bedford	MA	5A	113.77	110	Lubbock	TX	3B	83.37
50	Springfield	MA	5A	109.05	111	San Antonio	TX	2A	80.90
51	Worcester	MA	5A	113.32	112	Sherman	TX	3A	84.86
52	Baltimore	MD	4A	95.56	113	Salt Lake City	UT	5B	88.25
53	Portland	ME	6A	91.57	114	Richmond	VA	4A	88.73
54	Detroit	MI	5A	106.70	115	Burlington	VT	6A	93.33
55	Flint	MI	5A	99.95	116	Seattle	WA	4C	107.94
56	Grand Rapids	MI	5A	89.55	117	Spokane	WA	5B	98.80
57	Lansing	MI	5A	99.40	118	Green Bay	WI	6A	99.07
58	Duluth	MN	7	104.35	119	Madison	WI	6A	98.82
59	Minneapolis	MN	6A	108.01	120	Milwaukee	WI	6A	105.08
60	St Paul	MN	6A	105.73	121	Charleston	WV	4A	97.94
61	Cape Girardeau	MO	4A	93.48	122	Cheyenne	WY	6B	88.64

**TABLE 7 – CLIMATE ZONE RANGE OF INDICES**

Zone	No. of Sample Locations in Zone	Low Index	Low City	High Index	High City
Climate Zone 1A	2	88.27	Miami, FL	128.76	Honolulu, HI
Climate Zone 2A	11	80.90	San Antonio, TX	89.82	Titusville, FL
Climate Zone 2B	1	92.76	Phoenix, AZ	92.76	Phoenix, AZ
Climate Zone 3A	15	80.17	Spartanburg, SC	90.59	Atlanta, GA
Climate Zone 3B	10	79.81	El Paso, TX	113.22	Sacramento, CA
Climate Zone 3C	3	121.82	Fremont, CA	124.34	San Francisco, CA
Climate Zone 4A	20	83.81	Raleigh, NC	135.73	New York, NY
Climate Zone 4B	1	90.23	Albuquerque, NM	90.23	Albuquerque, NM
Climate Zone 4C	2	103.80	Portland, OR	107.94	Seattle, WA
Climate Zone 5A	37	85.50	Wichita, KS	120.10	Boston, MA
Climate Zone 5B	4	88.25	Salt Lake City, UT	98.80	Spokane, WA
Climate Zone 6A	9	82.93	Sioux Falls, SD	108.01	Minneapolis, MN
Climate Zone 6B	3	88.64	Cheyenne, WY	93.64	Billings, MT
Climate Zone 7	3	88.75	Fargo, ND	134.01	Anchorage, AK
Climate Zone 8	1	133.26	Fairbanks, AK	133.26	Fairbanks, AK

3.3 The average index for each State is shown for informational purposes only in **Table 2**, Appendix B.

3.4 For the purposes of illustrating the more subtle variations in costs at the wage level, the following table is presented. In this example, Carpenter and Electrician wage rates (May 2010) are compared as an index for the urban locations published by the Bureau of Labor Statistics for the State of Oregon. By definition of the stated locations, the table also shows that no labor data is published for locations that may be considered rural by the Census 2000 criteria. Further examples, for the State of Washington and the State of Montana are included in Appendix C.

**TABLE 8 – SAMPLE WAGE COMPARISON**



- 3.5 Further discussion of potential cost variations between urban and rural locations could involve reference to Prevailing Wage Rate (PWR) Determinations. For example, the Oregon PWR, although for Public Works contracts and not residential, may provide some insight to the lack of any significant variation. In the 2011 Oregon Determination, Carpenter wage rates are subject to zone differentials. The zone differential can vary from \$0.85/hr for projects within 30 miles of city hall up to \$5.00/hr for projects more than 100 miles from city hall. However, the reference cities include locations that could be considered rural (although not under the Census 2000 criteria). Examples of the smaller reference cities include Port Orford (pop. 1153), La Grande (pop. 13082), Burns (pop. 2806), and Baker City (pop. 9828).
- 3.6 The cost of residential construction may also vary depending upon accessibility for individual homes with there a likely low probability that any significant construction tracts developed in a rural classified area. Material cost may also vary only by the additional cost of transportation distance by road. This is not considered a major impact to the total cost of construction.

# APPENDIX A

**TABLE 1 - URBAN LOCATIONS BY STATE**

STATE	CITY				
Alabama	Mobile	Birmingham	Huntsville	Montgomery	
Alaska	Fairbanks	Anchorage			
Arizona	Phoenix				
Arkansas	Little Rock				
California	Fresno	Long Beach	Los Angeles	Riverside	Sacramento
	San Diego	Santa Ana	Fremont	Oakland	San Francisco
Colorado	Denver				
Connecticut	Stamford	New Haven	Hartford		
Delaware	Wilmington				
District of Columbia	Washington DC				
Florida	Miami	Jacksonville	St Petersburg	Tampa	Titusville
Georgia	Savannah	Atlanta			
Hawaii	Honolulu				
Idaho	Boise				
Illinois	Rockford	Rock Island	Peoria	Chicago	
Indiana	Evansville	South Bend	Indianapolis	Hammond	
Iowa	Des Moines				
Kansas	Topeka	Wichita			
Kentucky	Louisville				
Louisiana	New Orleans	Shreveport			
Maine	Portland				
Maryland	Baltimore				
Massachusetts	Boston	New Bedford	Springfield	Worcester	
Michigan	Detroit	Flint	Grand Rapids	Lansing	
Minnesota	Duluth	Minneapolis	St Paul		
Mississippi	Jackson				
Missouri	St Louis	Kansas City	Cape Girardeau		
Montana	Billings				

Nebraska	Omaha				
Nevada	Las Vegas				
New Hampshire	Manchester				
New Jersey	Trenton	Newark			
New Mexico	Santa Fe	Albuquerque			
New York	Albany	Buffalo	Schenectady	Syracuse	New York
	Rochester				
North Carolina	Charlotte	Raleigh			
North Dakota	Fargo				
Ohio	Akron	Cleveland	Columbus	Dayton	Youngstown
	Cincinnati				
Oklahoma	Oklahoma City	Tulsa			
Oregon	Portland				
Pennsylvania	Erie	Pittsburgh	Reading	Scranton	York
	Philadelphia				
Rhode Island	Providence				
South Carolina	Columbia	Spartanburg			
South Dakota	Sioux Falls				
Tennessee	Memphis	Nashville	Knoxville	Chattanooga	
Texas	Dallas	Fort Worth	Sherman	El Paso	Lubbock
	Corpus Christi	Houston	San Antonio		
Utah	Salt Lake City				
Vermont	Burlington				
Virginia	Richmond				
Washington	Spokane	Seattle			
West Virginia	Charleston				
Wisconsin	Madison	Milwaukee	Green Bay		
Wyoming	Cheyenne				



# APPENDIX B

**TABLE 1- FAITHFUL+GOULD AVERAGE INDEX FOR EACH CLIMATE ZONE**

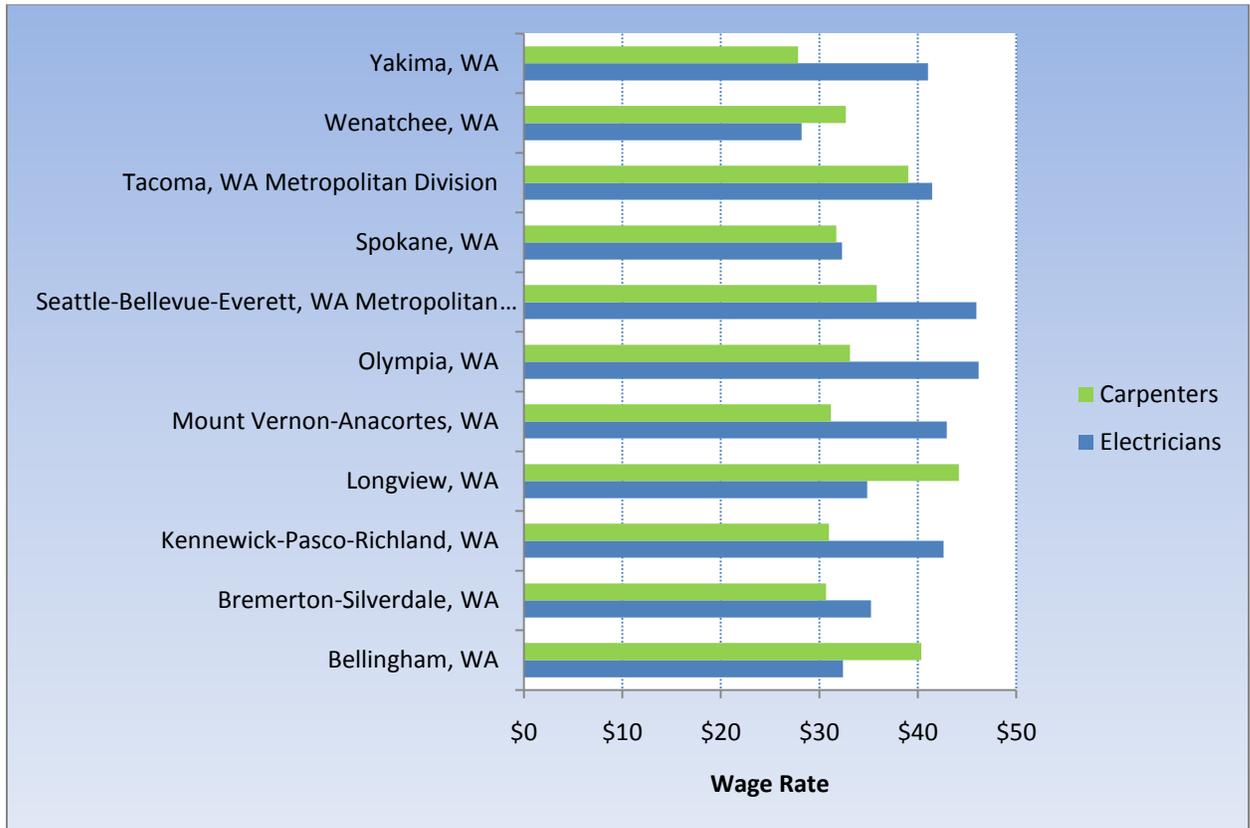
Zone	Number of Data Points	Average F+G Composite Index	Zone	Number of Data Points	Average F+G Composite Index
Climate Zone 1A	1	108.52	Climate Zone 4A	2	98.40
Climate Zone 2B	3	92.76	Climate Zone 5B	15	93.66
Climate Zone 2A	9	86.23	Climate Zone 5A	10	103.00
Climate Zone 3C	3	122.52	Climate Zone 6B	3	91.36
Climate Zone 3B	37	104.39	Climate Zone 6A	11	98.64
Climate Zone 3A	4	84.34	Climate Zone 7	1	109.04
Climate Zone 4C	20	105.87	Climate Zone 8	2	133.26
Climate Zone 4B	1	90.23			

**TABLE 2- FAITHFUL+GOULD AVERAGE INDEX FOR EACH STATE**

State	Number of Data Points	Average F+G Composite Index	State	Number of Data Points	Average F+G Composite Index	State	Number of Data Points	Average F+G Composite Index
AK	2	133.64	KY	1	92.86	NY	6	109.29
AL	4	84.24	LA	2	85.27	OH	6	96.71
AR	1	83.89	MA	4	114.06	OK	2	85.16
AZ	1	92.76	MD	1	95.56	OR	1	103.80
CA	10	114.19	ME	1	91.57	PA	6	102.46
CO	1	97.15	MI	4	98.90	RI	1	108.20
CT	3	112.37	MT	1	93.64	SC	2	80.80
DC	1	99.92	MN	3	106.03	SD	1	82.93
DE	1	105.34	MO	3	100.54	TN	4	86.31
FL	5	88.39	MS	1	83.30	TX	8	83.66
GA	2	88.24	NC	2	83.84	UT	1	88.25
HI	1	128.76	ND	1	88.75	VA	1	88.73
IA	1	94.64	NE	1	90.53	VT	1	93.33
ID	1	91.80	NH	1	96.67	WA	2	103.37
IL	4	106.86	NJ	2	115.58	WI	3	100.99
IN	4	98.99	NM	2	90.34	WV	1	97.94
KS	2	86.85	NV	1	106.31	WY	1	88.64

# APPENDIX C

**SAMPLE WAGE COMPARISON TABLE FOR STATE OF WASHINGTON**



**SAMPLE WAGE COMPARISON TABLE FOR STATE OF MONTANA**



# APPENDIX D

## DATA ANALYSIS AND COMPILATION PROCESS

### LABOR INDEX

For each of the 122 locations selected by Faithful+Gould (F+G), labor and fringe rates were gathered for the subset of occupations specified in section 2.2.3. Labor and fringe rates were compiled from Union, Davis Bacon and BLS data sources. Markups for overhead and profit, general conditions and payroll taxes and insurance were not applied since these items will generally vary on an individual project and subcontractor basis, not specifically by location. Averages across the occupational list for each location comprised an array of average Union wage and fringe rates by location. This vector was then normalized to obtain a Union Index. These steps were also applied to Davis-Bacon data and BLS data, thus producing three separate sets of the labor indices. Average (composite) Labor Index was calculated by averaging across these three normalized arrays.

### MATERIALS INDEX

The Materials Index was developed by pricing the materials basket shown in Table 4 for each location. Location-specific estimates were derived using the information from national suppliers such as Home Depot, where the information was available. This approach was selected for several reasons. First, using a national supplier assures consistent relationship across estimates since it is not possible to obtain quotes for all materials at all locations and because national chain stores do not carry the same inventory at each location. Second, comprehensive survey of the local suppliers at each of the 122 locations is not feasible under the specified schedule. Third, local suppliers have different markup structures, profit margins and/or discounts on list prices depending on their business volume, financial and accounting structure, location and the targeted market segment. Therefore taking costs from multiple supplier sources has the potential to skew the comparable nature of the costs. The resulting Material Basket estimates were normalized across 122 locations to obtain an F+G Materials index.

For validation, the F+G Material index was compared with RS Means Residential index, 2010 Compass International index, as well as A.C.E. Guide. (Please see the limited distribution file "Location Index Summary\_MASTER\_v0.22\_PNNL.xlsx"). Final F+G composite index is calculated by averaging across Average Labor Index, F+G Material Index, as well as the three above-mentioned proprietary indices for each location as illustrated below:

Pacific Northwest National Laboratories  
 Residential Energy Efficiency Measures  
 Location Factors  
 21<sup>st</sup> December, 2011

	City	State	Climate Zone	Average Union Rate	Average Davis Bacon	Average BLS (90th Percentile)	Union Index	Davis Bacon Index	BLS Index	Average Labor Index	Material Index	RS Means Residential	2010 Compass Int'l	A.C.E Guide	F+G Composite Index
1	Anchorage	AK	7	\$52.33	\$49.81	\$27.76	130.09	147.10	135.94	137.71	144.36	*	*	*	134.01
2	Fairbanks	AK	8	\$52.33	\$49.43	\$28.09	130.08	145.99	137.56	137.88	141.43	*	*	*	133.26
3	Birmingham	AL	3A	\$29.05	\$15.07	\$17.09	72.21	44.50	83.67	66.79	97.90	*	*	*	85.14
4	Huntsville	AL	3A	\$28.17	\$17.25	\$16.22	70.01	50.95	79.43	66.80	97.90	*	*	*	84.34
5	Mobile	AL	2A	\$27.41	\$17.85	\$16.33	68.13	52.71	79.97	66.94	102.40	*	*	*	85.87
6	Montgomery	AL	3A	\$26.72	\$13.16	\$17.16	66.41	38.85	84.04	63.10	97.90	*	*	*	81.60
7	Little Rock	AR	3A	\$25.24	\$20.09	\$16.55	62.75	59.32	81.06	67.71	100.73	*	*	*	83.89
8	Phoenix	AZ	2B	\$31.95	\$24.64	\$18.74	79.42	72.76	91.77	81.31	106.47	*	*	*	92.76
9	Fremont	CA	3C	\$58.41	\$55.40	\$27.01	145.20	163.60	132.26	147.02	106.07	*	*	*	121.82
10	Fresno	CA	3B	\$48.87	\$45.54	\$20.30	121.48	134.48	99.39	118.45	103.75	*	*	*	110.84
11	Long Beach	CA	3B	\$50.36	\$47.17	\$23.50	125.18	139.30	115.06	126.52	99.00	*	*	*	110.50
12	Los Angeles	CA	3B	\$49.89	\$47.02	\$23.50	124.01	138.86	115.06	125.98	99.00	*	*	*	112.20
13	Oakland	CA	3C	\$58.41	\$55.35	\$27.01	145.20	163.46	132.26	146.97	106.07	*	*	*	121.41
14	Riverside	CA	3B	\$50.36	\$46.49	\$22.19	125.18	137.31	108.66	123.72	98.81	*	*	*	109.51
15	Sacramento	CA	3B	\$52.35	\$49.07	\$22.45	130.14	144.93	109.97	128.34	103.75	*	*	*	113.22
16	San Diego	CA	3B	\$46.75	\$42.89	\$22.58	116.20	126.68	110.59	117.82	97.61	*	*	*	107.69
17	San Francisco	CA	3C	\$60.90	\$52.31	\$27.11	151.37	154.47	132.75	146.20	104.49	*	*	*	124.34
18	Santa Ana	CA	3B	\$50.18	\$46.07	\$23.26	124.74	136.05	113.89	124.89	98.25	*	*	*	110.43
19	Denver	CO	5B	\$34.41	\$32.76	\$20.29	85.55	96.75	99.35	93.88	104.88	*	*	*	97.15
20	Hartford	CT	5A	\$51.63	\$47.11	\$24.02	128.33	139.12	117.64	128.36	104.06	*	*	*	111.89
21	New Haven	CT	5A	\$51.06	\$46.77	\$24.43	126.93	138.12	119.64	128.23	104.06	*	*	*	111.86
22	Stamford	CT	5A	\$54.53	\$48.18	\$24.15	135.54	142.28	118.28	132.03	103.73	*	*	*	113.35
23	Washington DC	DC	4A	\$37.31	\$36.57	\$20.94	92.74	107.99	102.53	101.09	100.49	*	*	*	99.92
24	Wilmington	DE	4A	\$50.11	\$46.50	\$21.77	124.57	137.32	106.63	122.84	99.84	*	*	*	105.34
25	Jacksonville	FL	2A	\$27.56	\$16.94	\$17.82	68.50	50.03	87.28	68.60	99.92	*	*	*	87.70
26	Miami	FL	1A	\$27.43	\$17.07	\$18.08	68.19	50.40	88.56	69.05	99.32	*	*	*	88.27
27	St Petersburg	FL	2A	\$30.40	\$18.52	\$16.87	75.56	54.71	82.61	70.96	99.93	*	*	*	86.58

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	City	State	Climate Zone	Average Union Rate	Average Davis Bacon	Average BLS (90th Percentile)	Union Index	Davis Bacon Index	BLS Index	Average Labor Index	Material Index	RS Means Residential	2010 Compass Int'l	A.C.E Guide	F+G Composite Index
28	Tampa	FL	2A	\$30.30	\$19.11	\$16.87	75.32	56.43	82.61	71.45	100.29	*	*	*	89.55
29	Titusville	FL	2A	\$31.59	\$20.46	\$17.32	78.51	60.41	84.81	74.58	98.54	*	*	*	89.82
30	Atlanta	GA	3A	\$32.02	\$25.24	\$17.62	79.60	74.55	86.27	80.14	97.81	*	*	*	90.59
31	Savannah	GA	2A	\$27.28	\$19.95	\$18.44	67.80	58.92	90.31	72.35	100.06	*	*	*	85.88
32	Honolulu	HI	1A	\$56.93	\$51.96	\$27.41	141.52	153.44	134.23	143.06	130.72	*	*	*	128.76
33	Des Moines	IA	5A	\$36.44	\$32.96	\$20.39	90.59	97.35	99.85	95.93	94.25	*	*	*	94.64
34	Boise	ID	6B	\$32.14	\$26.86	\$18.18	79.89	79.32	89.05	82.75	102.22	*	*	*	91.80
35	Chicago	IL	5A	\$61.04	\$56.81	\$26.81	151.73	167.77	131.30	150.27	95.75	*	*	*	117.40
36	Peoria	IL	5A	\$46.89	\$43.89	\$22.85	116.55	129.63	111.88	119.35	93.35	*	*	*	103.74
37	Rock Island	IL	5A	\$43.29	\$41.13	\$20.96	107.62	121.46	102.64	110.57	94.59	*	*	*	99.83
38	Rockford	IL	5A	\$51.84	\$49.41	\$24.10	128.86	145.91	118.01	130.93	90.42	*	*	*	106.47
39	Evansville	IN	4A	\$38.46	\$36.00	\$19.51	95.61	106.32	95.52	99.15	97.48	*	*	*	96.33
40	Hammond	IN	5A	\$53.35	\$49.60	\$26.81	132.61	146.48	131.30	136.80	90.95	*	*	*	106.95
41	Indianapolis	IN	5A	\$39.87	\$37.67	\$20.00	99.12	111.26	97.93	102.77	93.39	*	*	*	97.83
42	South Bend	IN	5A	\$39.21	\$26.73	\$20.58	97.47	78.94	100.81	92.40	96.95	*	*	*	94.87
43	Topeka	KS	4A	\$35.82	\$23.73	\$18.45	89.04	70.08	90.33	83.15	101.83	*	*	*	88.20
44	Wichita	KS	5A	\$29.50	\$18.92	\$17.36	73.34	55.87	85.02	71.41	100.09	*	*	*	85.50
45	Louisville	KY	4A	\$34.50	\$34.02	\$18.57	85.75	100.46	90.93	92.38	98.92	*	*	*	92.86
46	New Orleans	LA	2A	\$27.81	\$19.28	\$17.81	69.12	56.93	87.22	71.09	96.66	*	*	*	88.15
47	Shreveport	LA	3A	\$26.28	\$15.44	\$17.50	65.33	45.61	85.70	65.55	99.42	*	*	*	82.39
48	Boston	MA	5A	\$60.48	\$58.62	\$27.03	150.34	173.13	132.36	151.94	103.57	*	*	*	120.10
49	New Bedford	MA	5A	\$55.50	\$52.98	\$21.58	137.96	156.46	105.70	133.37	102.50	*	*	*	113.77
50	Springfield	MA	5A	\$49.08	\$47.14	\$21.46	122.00	139.23	105.07	122.10	103.15	*	*	*	109.05
51	Worcester	MA	5A	\$58.09	\$56.11	\$22.49	144.39	165.72	110.14	140.08	102.50	*	*	*	113.32
52	Baltimore	MD	4A	\$39.10	\$28.68	\$19.59	97.18	84.69	95.93	92.60	100.22	*	*	*	95.56
53	Portland	ME	6A	\$34.29	\$23.03	\$18.79	85.23	68.01	92.02	81.75	102.09	*	*	*	91.57
54	Detroit	MI	5A	\$50.02	\$45.67	\$24.09	124.34	134.89	117.96	125.73	98.77	*	*	*	106.70
55	Flint	MI	5A	\$43.34	\$39.35	\$23.64	107.73	116.22	115.77	113.24	92.49	*	*	*	99.95

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56	Grand Rapids	MI	5A	\$35.80	\$13.08	\$18.70	88.98	38.64	91.60	73.07	95.69	*	*	*	89.55
57	Lansing	MI	5A	\$43.28	\$39.91	\$20.92	107.59	117.88	102.44	109.30	95.69	*	*	*	99.40
58	Duluth	MN	7	\$45.23	\$41.70	\$23.42	112.42	123.14	114.67	116.74	96.00	*	*	*	104.35
59	Minneapolis	MN	6A	\$50.87	\$45.94	\$24.73	126.45	135.67	121.13	127.75	89.28	*	*	*	108.01
60	St Paul	MN	6A	\$50.81	\$46.49	\$24.82	126.30	137.30	121.57	128.39	87.28	*	*	*	105.73
61	Cape Girardeau	MO	4A	\$44.64	\$37.78	\$18.91	110.97	111.57	92.58	105.04	93.35	*	*	*	93.48
62	Kansas City	MO	4A	\$49.25	\$45.37	\$20.67	122.42	133.98	101.22	119.21	100.16	*	*	*	103.67
63	St Louis	MO	4A	\$46.16	\$45.41	\$24.21	114.73	134.11	118.56	122.47	103.91	*	*	*	104.48
64	Jackson	MS	2A	\$26.64	\$16.59	\$15.43	66.22	48.99	75.58	63.60	99.89	*	*	*	83.30
65	Billings	MT	6B	\$29.13	\$28.68	\$18.81	72.42	84.70	92.12	83.08	113.11	*	*	*	93.64
66	Charlotte	NC	3A	\$28.44	\$13.86	\$16.44	70.68	40.93	80.50	64.04	101.28	*	*	*	83.86
67	Raleigh	NC	4A	\$27.50	\$12.33	\$16.82	68.36	36.42	82.37	62.38	98.69	*	*	*	83.81
68	Fargo	ND	7	\$30.27	\$30.61	\$18.72	75.24	90.41	91.68	85.78	96.00	*	*	*	88.75
69	Omaha	NE	5A	\$32.60	\$26.35	\$18.95	81.04	77.81	92.81	83.89	95.78	*	*	*	90.53
70	Manchester	NH	5A	\$35.07	\$33.73	\$19.87	87.18	99.61	97.33	94.71	101.65	*	*	*	96.67
71	Newark	NJ	4A	\$65.33	\$53.50	\$25.37	162.39	158.02	124.23	148.21	101.65	*	*	*	116.97
72	Trenton	NJ	5A	\$62.22	\$53.46	\$25.78	154.65	157.88	126.25	146.26	101.65	*	*	*	114.18
73	Albuquerque	NM	4B	\$32.46	\$29.87	\$17.29	80.68	88.20	84.69	84.52	100.63	*	*	*	90.23
74	Santa Fe	NM	5B	\$31.87	\$29.87	\$15.83	79.22	88.20	77.50	81.64	100.63	*	*	*	90.45
75	Las Vegas	NV	3B	\$50.53	\$40.85	\$22.97	125.60	120.64	112.49	119.58	101.98	*	*	*	106.31
76	Albany	NY	5A	\$43.72	\$42.40	\$23.36	108.67	125.22	114.40	116.10	104.76	*	*	*	104.17
77	Buffalo	NY	5A	\$46.25	\$41.38	\$20.88	114.97	122.21	102.25	113.14	102.49	*	*	*	105.93
78	New York	NY	4A	\$76.82	\$66.30	\$25.30	190.95	195.81	123.90	170.22	118.41	*	*	*	135.73
79	Rochester	NY	6A	\$40.94	\$38.60	\$19.19	101.76	113.99	93.97	103.24	103.69	*	*	*	103.19
80	Schenectady	NY	5A	\$43.57	\$42.02	\$23.36	108.31	124.10	114.40	115.61	104.76	*	*	*	104.67
81	Syracuse	NY	5A	\$41.44	\$36.22	\$21.12	103.01	106.96	103.43	104.47	103.69	*	*	*	102.03
82	Akron	OH	5A	\$41.71	\$37.93	\$19.70	103.67	112.03	96.46	104.05	96.64	*	*	*	98.54
83	Cincinnati	OH	4A	\$38.14	\$34.38	\$19.18	94.80	101.54	93.92	96.75	93.63	*	*	*	94.28

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84	Cleveland	OH	5A	\$44.04	\$39.62	\$21.71	109.48	117.01	106.31	110.93	96.64	*	*	*	101.72
85	Columbus	OH	5A	\$37.60	\$35.23	\$19.38	93.46	104.05	94.89	97.47	93.72	*	*	*	95.24
86	Dayton	OH	5A	\$37.98	\$34.15	\$18.81	94.42	100.86	92.09	95.79	93.96	*	*	*	93.95
87	Youngstown	OH	5A	\$39.60	\$37.23	\$20.54	98.44	109.97	100.57	102.99	96.64	*	*	*	96.53
88	Oklahoma City	OK	3A	\$30.68	\$22.49	\$16.65	76.27	66.42	81.56	74.75	101.89	*	*	*	86.33
89	Tulsa	OK	3A	\$29.34	\$16.70	\$16.71	72.92	49.33	81.84	68.03	101.89	*	*	*	83.98
90	Portland	OR	4C	\$45.51	\$43.30	\$23.52	113.12	127.88	115.19	118.73	101.25	*	*	*	103.80
91	Erie	PA	5A	\$41.10	\$38.37	\$18.12	102.16	113.33	88.72	101.40	99.19	*	*	*	98.32
92	Philadelphia	PA	4A	\$58.59	\$56.42	\$21.95	145.64	166.63	107.49	139.92	102.83	*	*	*	115.95
93	Pittsburgh	PA	5A	\$44.25	\$41.98	\$20.56	110.00	123.97	100.67	111.55	99.90	*	*	*	103.29
94	Reading	PA	5A	\$43.80	\$39.71	\$20.40	108.88	117.27	99.89	108.68	101.73	*	*	*	101.08
95	Scranton	PA	5A	\$42.74	\$39.21	\$18.08	106.23	115.80	88.54	103.53	101.83	*	*	*	99.67
96	York	PA	4A	\$43.06	\$26.54	\$19.33	107.05	78.38	94.67	93.37	101.73	*	*	*	96.42
97	Providence	RI	5A	\$50.12	\$49.29	\$21.73	124.60	145.57	106.39	125.52	102.50	*	*	*	108.20
98	Columbia	SC	3A	\$23.29	\$11.60	\$16.48	57.88	34.25	80.70	57.61	101.58	*	*	*	81.44
99	Spartanburg	SC	3A	\$21.36	\$ 7.65	\$16.69	53.09	22.61	81.74	52.48	100.37	*	*	*	80.17
100	Sioux Falls	SD	6A	\$26.64	\$16.32	\$17.60	66.23	48.21	86.21	66.88	95.78	*	*	*	82.93
101	Chattanooga	TN	4A	\$27.35	\$21.73	\$17.87	67.99	64.18	87.53	73.23	99.10	*	*	*	85.87
102	Knoxville	TN	4A	\$28.65	\$21.40	\$17.52	71.21	63.19	85.81	73.41	101.00	*	*	*	85.08
103	Memphis	TN	3A	\$29.62	\$21.81	\$17.45	73.62	64.41	85.48	74.50	97.93	*	*	*	86.89
104	Nashville	TN	4A	\$29.27	\$24.02	\$18.44	72.75	70.95	90.33	78.01	96.08	*	*	*	87.42
105	Corpus Christi	TX	2A	\$26.92	\$18.97	\$16.99	66.92	56.01	83.19	68.71	99.34	*	*	*	83.41
106	Dallas	TX	3A	\$25.37	\$16.76	\$17.04	63.07	49.51	83.44	65.34	95.08	*	*	*	85.28
107	El Paso	TX	3B	\$22.82	\$11.43	\$14.93	56.73	33.75	73.13	54.54	99.50	*	*	*	79.81
108	Fort Worth	TX	3A	\$25.71	\$14.82	\$16.92	63.92	43.77	82.85	63.51	95.08	*	*	*	84.32
109	Houston	TX	2A	\$29.41	\$18.83	\$17.80	73.11	55.61	87.15	71.96	97.80	*	*	*	87.35
110	Lubbock	TX	3B	\$24.71	\$19.87	\$15.42	61.43	58.67	75.53	65.21	97.65	*	*	*	83.37
111	San Antonio	TX	2A	\$26.25	\$ 8.40	\$16.41	65.25	24.82	80.38	56.82	92.69	*	*	*	80.90

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112	Sherman	TX	3A	\$27.43	\$24.15	\$16.79	68.18	71.33	82.24	73.92	94.40	*	*	*	84.86
113	Salt Lake City	UT	5B	\$30.60	\$23.06	\$18.99	76.05	68.11	92.99	79.05	106.18	*	*	*	88.25
114	Richmond	VA	4A	\$29.83	\$10.61	\$18.37	74.15	31.34	89.98	65.16	101.50	*	*	*	88.73
115	Burlington	VT	6A	\$39.14	\$28.77	\$19.41	97.30	84.97	95.05	92.44	102.23	*	*	*	93.33
116	Seattle	WA	4C	\$51.70	\$45.28	\$24.98	128.52	133.74	122.33	128.20	100.50	*	*	*	107.94
117	Spokane	WA	5B	\$39.19	\$28.15	\$21.79	97.41	83.15	106.69	95.75	99.27	*	*	*	98.80
118	Green Bay	WI	6A	\$46.59	\$35.96	\$21.08	115.82	106.21	103.21	108.41	89.94	*	*	*	99.07
119	Madison	WI	6A	\$45.93	\$40.95	\$21.32	114.17	120.94	104.40	113.17	89.94	*	*	*	98.82
120	Milwaukee	WI	6A	\$49.52	\$47.96	\$23.39	123.10	141.65	114.56	126.44	89.94	*	*	*	105.08
121	Charleston	WV	4A	\$41.06	\$40.16	\$18.62	102.06	118.60	91.19	103.95	101.76	*	*	*	97.94
122	Cheyenne	WY	6B	\$31.93	\$21.69	\$19.29	79.37	64.05	94.46	79.29	104.88	*	*	*	88.64

\* Proprietary data.

<b>Document Revision Log</b>		
<b>Rev Number</b>	<b>Revision Details</b>	<b>Date</b>
0		10/31/2011
1	Amended Average State table and added Average Climate Zone table	11/03/2011
2	Added Appendix D	12/21/2011
3	Removed Copyright statement on page 2, only	01/12/2012

<b>AUTHORIZATION</b>
Approved for issue
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**CONSTRUCTIVE EXPERTISE**

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