City of Seattle Department of Planning & Development

JODI PATTERSON-O'HARE 26456 Marine View Dr S Des Moines, WA 98198 Re: Project# 6275584

Correction Notice #1

Review Type MECHANICAL, ENERGY Project Address 1265 Republican St

Contact Email jodi@permitchw.com **DPD Reviewer** Shallesh K Desal

Reviewer Phone (206) 233-7860 **Reviewer Fax** (206) 386-4039 Reviewer Email Shailesh.Desai@seattle.gov **Contact Phone** (425) 681-4718 Contact Fax (253) 839-4856 Address Department of Planning & 700 5th Ave Suite 2000 PO Box 34019

Data December 13, 2011

Seattle, WA 98124-4019

Applicant Instructions

Please see the attached flyer to learn "How to Respond to a DPD Correction Notice". If the 3-step process outlined in the aforementioned document is not followed, it is likely that there will be a delay in permit issuance and there is a potential for penalty fees.

Codes Reviewed

This project has been reviewed for conformance with the following codes: 2009 Seattle Mechanical Code (SMC); 2009 Seattle Energy Code (SEC); 2009 Seattle Fuel Gas Code (SFGC); and 2009 Seattle Building Code (SBC).

- 1 Sht. 9.0 Detail A2 shows spray foam insulation. Provide ICC evaluation report and R-value established for different thicknesses.
- 2 Sht. 9.0 Detail I shows R38 average insulation thickness for the roof. Indicate insulation thickness profile and calc showing R-38 average value. 3 Sht. A3.1, A3.2 A3.3, A3.4 shows glazing areabeing increased. Provide % glazing area calc.
- Indicate existing glazing area and proposed glazing area. Also show that additional glazing will not reduce energy efficiency of the building as required by sect. 1132.1.
- 4 Sht. A6.0, A6.3, A6.10 Indicate NFRC certified product directory number for new fenestration (doors and windows skylights, located in the building envelope.

Protect# 6275584, Correction Notice# 1

- 5 Sht. A6.8, A6.9 details 4,5,7 shows steel framing. Is this existing or new installation.. Indicate wall insulation as required by the code table 13-1. Also show insulation and R-value at other
- 6 Sht. A1.1 Indicate perimeter slab on grade insulation at new floor infill.

Project# 6275584, Correction Notice# 1



Ecotope, Inc. 4056 9TH AVENUE NE SEATTLE, WA 98105 P: (206) 322-3753 F: (206) 325-7270

MEMO

Date: February 15, 2012 To: Shailesh Desai, DPD Reviewer

CC: Melissa Wechsler, Runberg Architecture Group PLLC

RE: Project #6275584 Correction Notice #1: Energy

Corrections and Responses

Project #6275584 Permit Corrections

sect. 1132.1

listed on Sheet A6.0.

1. Sht. 9.0 Detail A2 shows spray foam insulation. Provide ICC evaluation report and R-value established for different thicknesses.

The ICC evaluation report for the specified spray foam insulation is attached (BASF Spraytite 81206). Detail A2/A9.0 shows 2" of spray foam insulation which will have an R-value of R-13 according to this report.

2. Sht. 9.0 Detail I shows R38 average insulation thickness for the roof. Indicate insulation thickness profile and calc showing R-38 average value.

Detail I/A9.0 directs the contractor to install sloped rigid insulation with a minimum R-10 and an average R-38 value. At this time we are working with as-built documents that provide general height info via spot elevations at the underside of the existing roof assembly and at the top of the existing roof assembly (i.e. roof membrane). The renovation work includes removing the existing roofing and installing new structural sheathing over the existing joists, then proceeding with installation of the elements of the roof called out on detail I/A9.0. At this time we have no way of knowing the thickness of the existing roofing to be removed as the conditions vary across the roof area given its 100+ years of renovations and maintenance. This means we do not know the final elevation of the new roof sheathing and cannot accurately determine the minimum and maximum thickness of insulation at each point across the roof's surface. Furthermore, the final drainage planes will be determined by the means and methods of the contractor's installation. There are multiple ways the drainage planes may be manipulated to provide a minimum average R-38 value while still shedding water to the downspouts and avoiding conflict with the roof monitors and parapet flashing. Unlike with a new construction project where the elevation of the roof sheathing and surrounding structural elements are known, on a historic project, calculation of the roof slopes cannot be confirmed before the field conditions are known.

To further strengthen the direction for minimum and average R-values on I/A9.0, we've

3. Sht. A3.1, A3.2, A3.3, A3.4 shows glazing area being increased. Provide % glazing

area calc. Indicate existing glazing area and proposed glazing area. Also show that additional glazing will not reduce energy efficiency of the building as required by

The glazing percentage of Gross Wall Area for the Laundry building is summarized in

Area Glazing Area Glazing Area

1,457 1.342

1,540 1.299

7,045

30.6%

Although the glazing percentage has been slightly increase (by 0.6%), the renovation will replace all existing windows with either refurbished windows, or new high performance windows. Table 2 below summarizes the Existing conditions and Proposed glazing

replacement. Since most of the existing windows are single pane (and several are boarded

The weighted average U-value for the Proposed glazing package is 0.30, compared to the

existing weighted average U-value of 1.44, therefore the proposed glazing package

up), the default U-Value was taken from Table 10-6 of the Seattle Energy Code. Doors were considered to be uninsulated metal with a U-value of 1.20. Proposed U-values are

1,523 1,540

1,149 1,523

7,174

Table 1: Laundry Glazing Percentage Breakdown

Gross Wall Existing

5,167

5,675

23.012 % GWA

greatly improves the performance over the existing base case.

the scuppers (i.e. the low points of the roof) will be R-10."

added a note to drawing 10/A8.1 that states the minimum R-value of the roof insulation at

Table 2: Glazing Totals and Weighted Average U-Value vation. Type: Oty 5F Area U-Value LIA. Type: Oty SF. Area U-Value. UA.

Project #6275584 Permit Corrections

Project #6275584 Permit Corrections

				1.1						(sf)		
East	W1	9	24	216	1.45	313.2	W1	9	24	216	0.26	56.16
East	W2	15	21	315	1.45	456.75	W2	15	21	315	0.26	81.9
East	W3	5	27	135	1.45	195.75	W3	9	27	243	0.26	63.18
East	W4	9	23	207	1.45	300.15	W4	12	23	276	0.26	71.76
East	W7	1	96	96	1.45	139.2	W7	1	96	96	0.26	24.96
East	W11	1	110	110	1.45	159.5	W11	1	126	126	0.26	32.76
East	S1	1	123	123	1.45	178.35	51	1	143	143	0.38	54.34
East	Circular Windows	8	3	24	1.45	34.8	Circular Windows	8	3	24	0.6	14.4
East	Door	1	61	61	1,2	73.2		0	0	0	0.4	0
East	Door	2	26	52	1.2	62.4						
East	Window Wells	4	21	84	1.45	121.8						
East	Door	1	34	34	1.2	40.8						
North	W9	3	90	270	1,45	391.5	ew	3	90	270	0.26	70.2
North	W8	4	94	376	1.45	545.2	W8	4	94	376	0.26	97,76
North	W13	1	118	118	1.45	171.1	W13	3	118	354	0.26	92.04
North	W12	3	124	372	1.45	539.4	W12	3	124	372	0.26	96.72
North	52	1	109	109	1.45	158 .05	S2	1	151	151	0.38	57.38
North	Deli Window	1	97	97	1.45	140.65						
North	Window		65	٥	1.45	O						
West	W10	2	89	178	1.45	258.1	W10	2	89	178	0.26	46.28
West	E5	12	21	252	1.45	365.4	E5	12	21	252	0.4	100.8
West	E4	2	24	48	1.45	69.6	E4	2	24	48	0.4	19.2
West	E2	8	21	168	1.45	243.6	E2	8	21	168	0.4	67.2
West	W14	2	116	232	1.45	336.4	W14	2	116	232	0.26	60.32
West	E7	1	23	23	1.45	33,35	E7	1	23	23	0.4	9.2
West	S5	1	104	104	1.45	150.8	S 5	1	104	104	0.38	39.52
West	S6	1	104	104	1.45	150.8	S6	1	104	104	0.38	39,52
West	S 7	1	104	104	1.45	150.8	S7	1	104	104	0.38	39.52
West	E3	6	23	138	1.45	200.1	E3	6	23	138	0.4	55.2
West	W20	4	10	40	1.45	58	W20	4	10	40	0.28	11.2
West	S8	1	57	57	1.45	82.65	S8	1	57	57	0.38	21.66
West	W21	4	23	92	1.45	133.4	W21	4	23	92	0.28	25.76
South	W8	2	94	188	1.45	272.6	W8	2	94	188	0.26	48.88
South	W6	1	27	27	1.45	39.15	W6	1	27	27	0.26	7.02
South	E4	1		24	1.45	34.8	E4	1	24	24	0.4	9.6

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			E,	dsting					Pro	posed		
Elevation		Oty	5,6			UA					ig verifica	
South	Opening	1	42	42	1.45	60.9	W2	7	21	147	0.26	38.22
South	W12	1	124	124	1.45	179.8	W12	1	124	124	0.26	32.24
South	S3	1	151	151	1.45	218.95	S3	1	151	151	0.38	57.38
South	S4	1	67	67	1.45	97.15	S4	1	67	67	0.38	25.46
South	E6	1	27	27	1.45	39.15	E6	1	27	27	0.4	10.8
South	59	1	120	120	1.45	174	W4	5	23	115	0.38	43.7
South	51 0	1	159	159	1.45	230.55	S9	1	120	120	0.38	45.6
South	Opening	1	121	121	1.45	175.45	510	1	159	159	0.38	60.42
South -	Opening	1	211	211	1.45	305.95						
South	Opening	1	38	38	1.45	55.1						
Monitor	W9	3	90	270	1.45	391.5	W9	3	90	270	0.26	70.2
Monitor	W8	4	94	376	1.45	545.2	W8	4	94	376	0.26	97.76
Monitor	W13	1	118	118	1.45	171.1	W13	3	118	354	0.26	92.04
Monitor	W12	3	124	372	1.45	539.4	W12	3	124	372	0.26	96.72
Monitor	52	1	109	109	1.45	158.05	S2	1	151	151	0.38	57.38
Monitor	Deli Window	1	97	97	1.45	140.65						
Monitor	Window	1	65	65	1.45	94,25						
TOTALS		1		7045		10179				7174		2142

4. Sht. A6.0. A6.3. A6.10 Indicate NFRC certified product directory number for new fenestration (doors and windows skylights, located in building envelope). Sheet A6.0 has been revised to indicate the NFRC product numbers for the proposed

Weighted Average U-Value 1.44

5. Sht. A6.8, A6.9 details 4, 5, 7 shows steel framing. Is this existing or new installation.. Indicate wall insulation as required by the code table 13-1. Also show insulation and R-value at other similar locations.

The steel framing shown in the details is new to support the existing masonry wall. The structural metal frame design was developed considering the visual impact of new storefront on the historic building; the design was reviewed and approved by the Landmarks Preservation Board. We could have suggested a different aesthetic that would have accommodated insulation as required by energy code table 13-1, but that design would not have been visually suited to the historic building. Roughly 20% of the exterior walls will be left as-is without added insulation to enhance the historic nature of the building to its users. We have allowed for this condition in the energy calculations and

Project #6275584 Permit Corrections

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have verified through preliminary energy modeling that leaving the masonry walls exposed on both sides will also allow us to meet our energy goals for the project. The final energy model for use in LEED documentation has not yet been prepared, but based on preliminary modeling the project is expected to exceed 50% savings over the ASHRAE Standard 90.1-2007 basecase. The Seattle Energy Code Reference Standard 29 (RS-29), a modified version of Appendix G from Standard 90.1-2007, requires the proposed building to consume 5% less energy than the base building. Therefore, the proposed Supply Laundry Building renovation will consume at least 5% less energy than the equivalent RS-29 compliant basecase building. Please refer to the attached preliminary modeling report for more information about the modeling study and results.

6. Sht. A1.1 Indicate perimeter slab on grade insulation at new floor infill. Sheet A9.0 has been revised to include a detail for perimeter slab on grade insulation,

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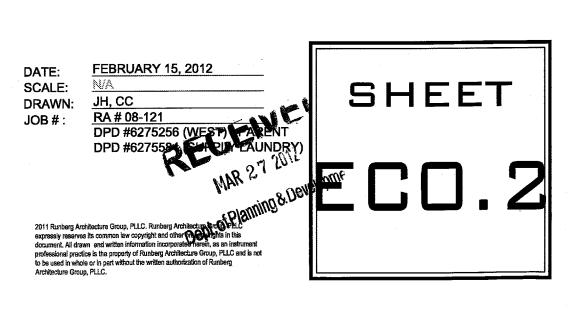
LAUNDRY BLOCK HISTORIC BUILDING 1265 REPUBLICAN ST. SEATTLE, WA 98109

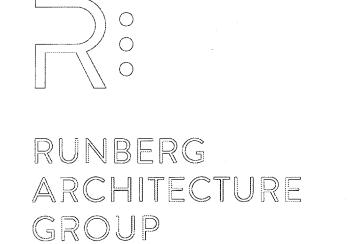
ENERGY CODE **PERMIT** CORRECTION 1 & RESPONSE

SUBMITTAL/REVISIONS: BP CHECKSET 10.07.11 BUILDING PERMIT 11.15.11 BP CORRECTIONS 2.15.12

90% CD ADDENDUM 3.9.12

BP CORRECTIONS 3.26.12





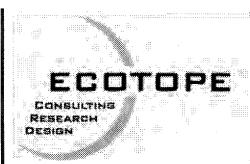




ECOTOPE



Melissa Wechsler, Runberg Architects



Prepared for:

Prepared by: Morgan Heater, PE, LEED AP, BEMP

May 25, 2011

REPORT

Block 10 NE Preliminary Modeling Results

Energy Modeling Assumptions & Methodology



Figure 1: eQuest Model Screenshot

The building was entered into eQUEST to match the actual geometry as closely as possible, including the façade openings and zoning, as these won't change significantly in the re-model. The daylight monitor was simplified to a sky-light with the same amount of glazing area and wall height. The basement was modeled with varied depths of below grade walls, to approximate the actual building.

The baseline model was developed to meet the requirements of ASHRAE 90.1-2007. Basic assumptions for the Baseline model are as follows:

- 1. Envelope: In accordance with Appendix G, ASHRAE 90.1-2007 the existing envelope was used for the baseline building.
- 2. Internal Gains:
 - a. Dining 2 W/SF LTG, .05 W/SF EQP, 100 SF/PERSON.
 - b. Kitchen 1.2 W/SF LTG, 11.15 W/SF EQP, 200 SF/PERSON
 - c. Storage .8 W/SF LTG, NO EQP, NO PEOPLE d. Retail - 1.7 W/SF LTG, .2 W/SF EQP, 300 SF/PERSON
 - e. Office 1.1 W/SF LTG, .75 W/SF EOP, 200 SF/PERSON
- f. Corridor/Bathroom/Mech .8 W/SF LTG, NO EQP, NO PEOPLE
- 3. Ventilation: ASHRAE 62.1 2007 requirements.
- 4. Mechanical: VAV w PFP Boxes, DX cooling, Electric Resistance Heat, 75F drybulb economizer, .3 minimum primary sir, 9.5 EER

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Block 10 NE Preliminary Modeling Results

REPORT

Executive Summary

We performed an analysis to determine the effects of the various energy savings measures proposed for the Laundry Building, both in terms of annual energy use and potential LEED points compared to an ASHRAE 90.1 2007 baseline building. The proposed energy efficiency

- WSEC-2009 Zone 1 Insulation & Lighting Power Density Reductions
- WSEC-2009 Zone 2 Insulation
- High Performance Glazing
- Daylighting
- Variable Refrigerant Flow Split System Heat Pumps

Predicted savings and LEED points for the above measures are shown in Table 1. Note that the measures listed in the tables are cumulative, so each measure added assumes that the earlier modeled measure is in place.

Table 1: Commercial Analysis

Run Name	Run Number	EUI (BTU/SF)	Energy Cost (\$\$/SF)	% \$\$ Savings	LEED Points
ASHRAE - BASELINE	1	75,816	1.98	NA	NA
WSEC ZONE 1 INSULATION	2	52,487	1.37	31%	14
WSEC ZONE 2 INSULATION	3	51,478	1.34	32%	15
HIGH PERFORMANCE GLAZING	4	38,650	1.00	48%	21
DAYLIGHTING	5	35,387	0.92	54%	21
VRF	7	25,294	0.65	67%	21

With all of the proposed measures, the project should be able to save roughly 67% over the baseline for a total of 21 EA credit 1 points under LEED CS - 2009.

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Block 10 NE Preliminary Modeling Results

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Each of the energy efficiency measures was modeled as follows:

- 1. WSEC 2009 Zone 1 Insulation & Lighting Power Density Reduction:
 - a. Below Grade Walls & Above Grade Walls: Internal 2x6 wood-frame w/R-21 batt
 - b. Roof: Continuous R-30 rigid insulation entirely above deck
 - c. Windows: Existing Singe-Pane Windows
 - d. Lighting Power density reduced to WSEC-2009 levels for occupancy types listed
- 2. WSEC 2009 Zone 2 Insulation:
 - a. Below Grade Walls & Above Grade Walls: Internal 2x6 wood-frame w/ R-13 batt + R 7.5 continuous insulation.
 - b. Roof: Continuous R-38 rigid insulation entirely above deck
- 3. High Performance Glazing: NFRC U-Value of .25 (includes frames), SHGC .59
- 4. Daylighting: The daylit zones are modeled with the following controls
 - a. Lighting setpoint: 50 fc
 - b. Control Type: Continuous.
- c. Minimum Power Fraction: .3.
- 5. Variable Refrigerant Volume Split System Heat Pumps:
- a. Ductless indoor heat pump units per zone b. Heat recovery ventilation with ERV

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Block 10 NE Preliminary Modeling Results

Conclusion

REPORT

Each of the measures was added in the order above to the baseline model. The savings shown in Table 1 are cumulative. Some of the measures, particularly measures that reduce the heating energy use, interact and won't necessarily save the predicted amount with a different suite of measures. Final choices about envelope materials, detailing, and mechanical system type will also change the final savings predictions.

In addition to LEED points, the project has a goal of meeting the 2030 Challenge. Using the 70% savings goals set for 2015 by the 2030 Challenge gives the following energy use intensities for the different occupancy types:

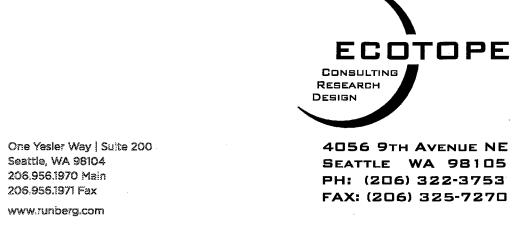
Table 2: Laundry Building EUI Summary

Occupancy	EUI 2015 (70% Savings) 24.6			
Retail	24.6			
Restaurant	90.6			
Office	12.9			
Weighted Average	30			

The proposed package of measures achieves the 2030 target for this building. LEED EA credit 1 points are relatively simple to achieve with envelope improvements, because the existing envelope is completely un-insulated, there are a lot of single pane windows, and the building is likely to be very leaky. Achieving the 2030 challenge EUI goals is more challenging, and will require a high efficiency mechanical system and tenant guidelines that specify mechanical system type and performance, and lighting power densities. EUI goals are also more subject to tenant behavior. For instance, a busy restaurant with more intense cooking equipment loads could have double the EUI, which would push the laundry building over the 2030 Challenge limits for 2015.

Ecotope, Inc.

RUNBERG ARCHITECTURE GROUP



LAUNDRY BLOCK HISTORIC BUILDING 1265 REPUBLICAN ST. SEATTLE, WA 98109

ENERGY MODELING REPORT

SUBMITTAL/REVISIONS: BP CHECKSET 10.07.11 BUILDING PERMIT 11.15.11

DRAWN: JOB#: BP CORRECTIONS 2.15.12 90% CD ADDENDUM 3.9.12 BP CORRECTIONS 3.26.12

