City of Seattle
Department of Construction and Inspections
www.seattle.gov/sdci
700 Fifth Ave, Suite 2000, P.O. Box 34019, Seattle, WA 98124-4019
Phone: 206-684-8850

Code Modification or Alternate Request

Date Requested: 06/19/2018

Contact Information:

Name: Scot Carr, AIA
Mailing Address: 232 Aurora Ave N, Suite 200
Seattle, WA 98109

Phone Number: (206) 218-8708
Fax Number:
E-mail Address: scotc@public47.com

Relationship to Project:
- ☐ Owner
- ☐ Design Professional
- ☐ Contractor

Project Information:

A/P Number: 6574184
Address: 3825 Bridge Way N
Code Edition: 2015 SBC / SMC

Structure Information:

Project Description:
New 42 Unit Multifamily Building

Occupancy Group(s)/ Character:
R-2 (Apartment)
Type of Construction: VA
Number of Stories: 5
Basements/ Mezzanines: 1 Basement
Sprinkler Location: Fully Sprinklered

Code Modification Request:

Ref. SBC 104.4. A code modification is a waiver of a code requirement, and is intended to provide flexibility to the building official where there are practical difficulties meeting specific code requirements so long as the intent of the code is accomplished.

The requestor is expected to demonstrate:

1. *There are practical difficulties involved in strictly conforming to the provisions of the code; and*
2. *The modification conforms with the intent and purpose of the code; and*
3. *Together with other safety features of the building or other relevant circumstances, the modification will provide a reasonable level of strength, effectiveness, fire resistance, durability, safety, accessibility and sanitation.*

When engaged for the project, the registered design professional in responsible charge shall submit the request for a code modification under their seal and signature, including a statement that in their professional opinion, the proposal is in conformance with the intent and purpose of the code and the modification will provide a reasonable level of strength, effectiveness, fire resistance, durability, safety, accessibility and sanitation.

Please attach plans showing your proposal.

Code Alternate Request:

Ref. SBC 104.5. A code alternate is intended to provide for introduction of alternate materials, systems and methods for which the code did not anticipate, provisional upon the alternate complying with the code and providing an equivalent solution. Essentially, a code alternate is intended to meet a performance standard rather than a prescriptive standard.

The requestor is expected to demonstrate that the alternate does not conflict with the code and together with other safety features of the building or other relevant circumstances, will provide an equivalent level of strength, effectiveness, fire resistance, durability, safety, accessibility and sanitation.

Construction Review & Inspection Quality
Jonathan Siu, Principal Engineer

When engaged for the project, the registered design professional in responsible charge shall submit the request for a code alternate under their seal and signature, including a statement that in their professional opinion, the alternate is equivalent to the code provisions.

Please attach plans showing your proposal.

Washington State Seal and Signature	***Seattle DCI Use Only***
(Please see attached stamp and statement)	☐ **Approved** ☐ **Approved with Amendment** ☐ **Denied** **Reasons:**

Description of Alternate/ Modification (include reason for request):

We respectfully request the the 30cfm continuous ventilation rate, as required for Group R Private Dwellings in Table 403.8.1, serve to meet the combined exhaust airflow rate for bathroom (20cfm) annd kitchen (25cfm). The bathroom exhaust rate of 30cfm continuous will also serve the kitchen exhaust rate by means of an air transfer mechanism from the adjacent kitchen to the bathroom.

The reason for this request is to avoid the over-ventilation of small apartment units, which results in uneccessary heat loss and excessive drying of interior air.

Description of Code Requirement (include section):

SMC Table 403.3 requires Exhaust Airflow Rate of 25cfm continuous for kitchens and 20cfm for Bathrooms.
SMC Table 403.8.1 required Group R Private Dwellings to have continuously operating ventilation rate of 30cfm for 0-1 bedrooms and less than 1500sf of Floor Area to supply the minimum outdoor airflow rate.

Justification (attach copies of any reference, test reports, expert opinions, etc.):

Please find a letter attached from WSP, the mechanical design engineer for the project, and a typical open studio plan showing the proximity of the kitchen and bath to each other. A transfer mechanism will direct airflow from the kitchen into the bathroom for exhaust through the Heat Recovery Ventilator.

This project is being designed for ultra-low energy use to meet the Energy Petal requirements of the Living Building Challenge and the City of Seattle Living Building Pilot program. A Heat Recovery Ventilator will be used to provide continuous ventilation for multiple units with both exhaust and fresh air supply. A key part of this design is to use charcoal filter recirculating range hoods for filtering air prior to exhaust from each kitchen directed through the HRV system. As a result, heat recovery from both the kitchen and bathroom exhaust will pre-heat the incoming fresh air for both comfort and energy efficiency. We believe that the 30cfm exhausted from the bathroom and drawing air from the kitchen will meet the intended exhaust rates called for by code.

June 19, 2018

Scot Carr, Partner
Public47
232 Aurora Ave N
Suite 200
Seattle, WA 98109

Subject: **Bridge Way Exhaust Code Variance**

Dear Scot,

This letter is to document our request for a code variance to the 2012 Seattle Mechanical Code for the Bridge Way multi-family apartment project located at 3825 Bridge Way North in Seattle, WA. The building will include 42 apartments, ranging in size from 288 sf to 560 sf.

According to the Seattle Mechanical Code, ventilation and exhaust airflow rates are determined by Tables 403.3.1.1 and 403.4.1:

[W] TABLE 403.3.1.1—continued
MINIMUM VENTILATION RATES

Private dwellings, single and multiple				
Garages, common for multiple units[b]	—	—	—	0.75
Kitchens[b]	—	—	—	25/100[f]
[W]Living areas[c]	Based upon number of bedrooms. First bedroom, 2; each additional bedroom, 1	((~~0.35 ACH but not less than 15 cfm/person~~)) See Tables 403.4.1 & 403.4.5.1	—	—
[W]Toilet rooms, ((~~and~~)) bathrooms[k] and laundry areas[g, i]	—	—	—	20/50[f]

WSP USA
Suite 3200
999 Third Avenue
Seattle, WA 98104

Tel.: +1 206 382-5200
Fax: +1 206 382-5222
wsp.com

Table 403.4.1
Ventilation Rates for All Group R Private Dwellings, Single and Multiple
(Continuously Operating Systems)

Floor Area (ft^2)	Bedrooms[1]				
	0–1	2–3	4–5	6–7	≥((6)) 7
≤500	30	40	45	55	60
500 – 1000	45	55	60	70	75
1001 – 1500	60	70	75	85	90
1501 – 2000	75	85	90	100	105
2001 – 2500	90	100	105	115	120
2501 – 3000	105	115	120	130	135
3001 – 3500	120	130	135	145	150
>3500	135	145	150	160	165

[1] Ventilation rates in table are minimum outdoor airflow rates measured in cfm.

For each apartment in this project, these tables require a ventilation rate of 30 CFM of outside air (0-1 bedroom and less than 500 SF) and a continuous exhaust rate of 45 CFM (one bathroom and one kitchen as part of the living space). 45 CFM is a relatively large continuous airflow rate for apartments of this size, and results in an air change rate between 0.56 and 0.97 air changes per hour. It is our opinion that this is a higher ventilation and exhaust rate than is required to maintain a healthy indoor air environment and an acceptable maximum concentration of indoor air contaminants for this size of apartment. This excessive ventilation will result in greater than necessary energy consumption for the building.

The ventilation requirements in the Seattle Mechanical Code are generally based on the American Standard of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) Standard 62.1 – Ventilation for Acceptable Indoor Air Quality. ASHRAE Standard 62.1-2010 allows the transfer of exhaust air into a restroom, as described in Section 5.16.2.3, which states:

> "Transfer of Class 2 air to toilet rooms shall be permitted."

General kitchen exhaust air is considered Class 2 air by the standard.

We request that the Authority having Jurisdiction (AHJ) allow us to use this approach. We will exhaust the apartment restrooms continuously at a rate of 30 CFM. We will transfer 30 CFM of air from the kitchen/living area to the restroom. We will continuously supply 30 CFM of outside air from a heat recovery ventilator to the living area. This will effectively result in the kitchen having a continuous exhaust rate of 30 CFM (to the bathroom) and the bathroom having continuous exhaust rate of 30 CFM. The effective air change rate for the spaces will range between 0.37 and 0.65 air changes per hour.

We are confident this ventilation and exhaust rate will result in good indoor air quality. Please let us know if this approach is acceptable for this project.

Sincerely,

Charles Gronek, PE, LEED AP BD+C
Associate

PUBLIC47ARCHITECTS 820 JOHN STREET SEATTLE, WA 98109
T 206.316.2647 | WWW.PUBLIC47.COM

MEMO **3825 BRIDGE WAY NORTH**

Subject: Code Alternate Request
3825 Bridge Way North
DPD #6574184

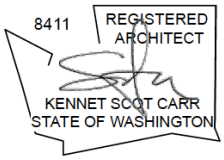
June 19, 2018

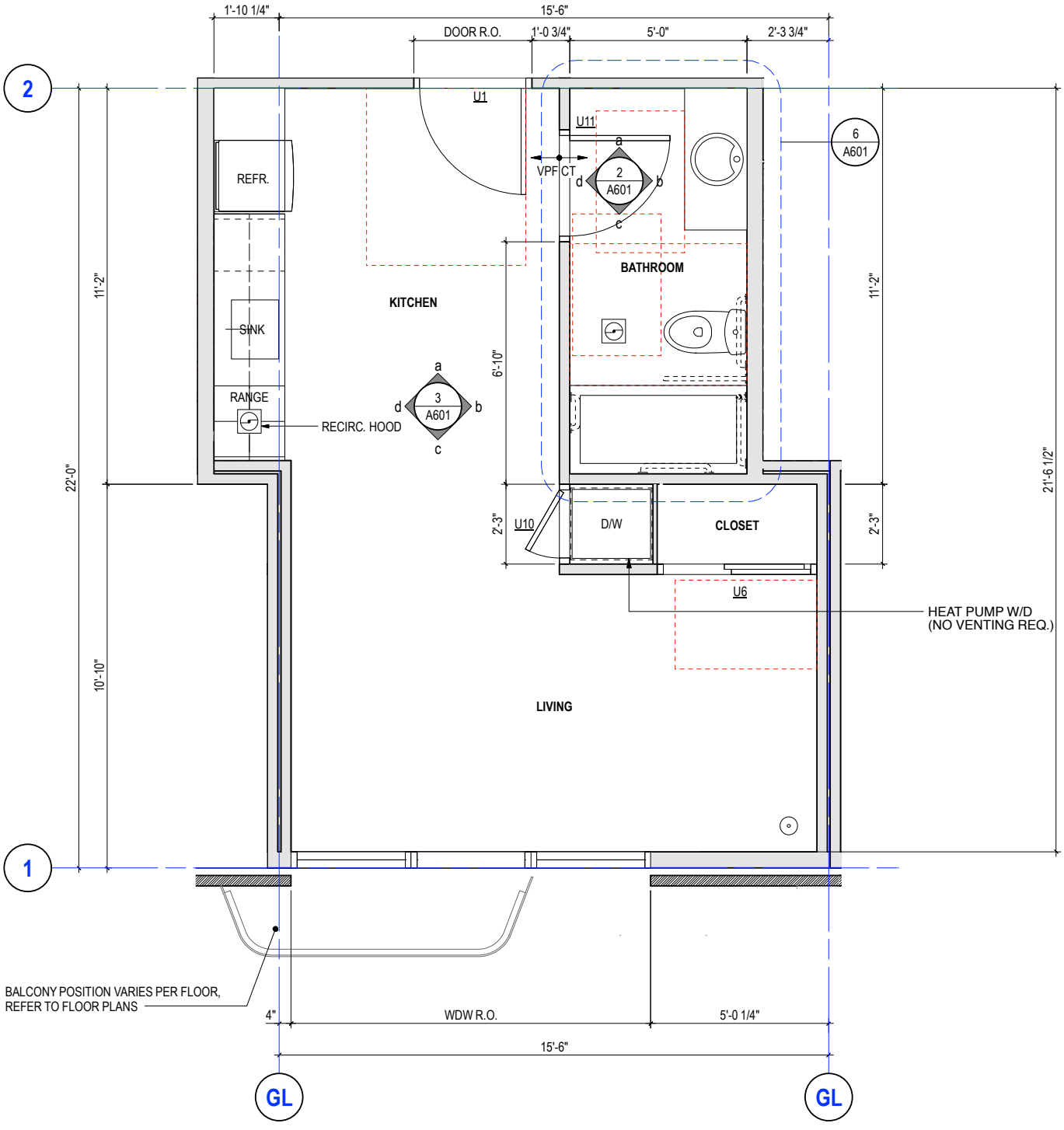
From: Scot Carr, AIA, PUBLIC47 Architects

CODE ALTERNATE DESIGN PROFESSIONAL STATEMENT

In my professional opinion, the following Code Alternate Request is in conformance with the intent and purpose of the code, and the modification will provide a reasonable level of effectiveness, fire resistance, durability, and safety. The requested alternate is, in my opinion, equivalent to the code provisions.

Scot Carr, AIA
Partner | PUBLIC47 Architects, LLC





1 A601 **TYPICAL STUDIO UNIT**
SCALE: 3/8"=1'-0"