

# Project Summary

PROJ-SUM

2018 Seattle Energy Code Compliance Forms for Commercial Buildings including R2, R3, & R4 over 3 stories and all R1 Revised Mar 2021 rev. 1

<b>General Info</b>  <i>This PROJ-SUM form shall be provided as a cover sheet for all compliance form submittals. Project Title shall match plans title block.</i>	<b>Project Title:</b> 4001 S WILLOW ST	<b>Date:</b> 6/1/2022
	<b>Project Street Address:</b> 4001 S WILLOW ST	For SDCI Use
	<b>Project City, County, Zip:</b> SEATTLE, WA 98118	
	<b>Project Owner or Rep:</b> OZ NAVIGATOR	
	<b>Jurisdiction:</b> SEATTLE	

<b>Project Description</b>  <i>Select all that apply to the scope of project.</i>  <i>Select Addition + Existing or Alteration + Existing if the existing building will be combined with the addition or alteration to demonstrate compliance per Section C502.1 or C503.1.</i>	<b>New Construction and Additions</b> <input checked="" type="checkbox"/> New Building <input type="checkbox"/> Building Addition		
	<b>Existing Building Retrofit</b> <input type="checkbox"/> Alteration <input type="checkbox"/> Change of Occupancy <input type="checkbox"/> Change in Space Conditioning <input type="checkbox"/> Historic Building <input type="checkbox"/> Substantial Alteration		
<b>Building Elements Scope - Select all that apply</b> <input type="checkbox"/> All <input checked="" type="checkbox"/> Building Envelope <input type="checkbox"/> Mechanical Systems <input type="checkbox"/> Service Hot Water Systems <input type="checkbox"/> Lighting Systems <input type="checkbox"/> Electrical Systems			

<b>Occupancy Type</b>	<input type="radio"/> All Commercial <input type="radio"/> Group R - R2, R3, & R4 over 3 stories and all R1 <input checked="" type="radio"/> Mixed Use		
	<b>Mixed Use</b> - Building is greater than three stories above grade and it has both Commercial and Group R occupancies. <b>Mixed Occupancy</b> - Building is three stories or less above grade and it has both Commercial and Group R2, R3 or R4 occupancies. Select All Commercial to document compliance for the commercial areas of the building. The residential spaces shall comply with the WSEC Residential Provisions.		

<b>Space Conditioning Categories</b>  <i>Select all that apply to the scope of project</i>	<input checked="" type="checkbox"/> Fully Conditioned <input type="checkbox"/> Unconditioned <sup>3</sup> <input type="checkbox"/> Refrigerated Spaces (Warehouse and/or Walk-in <sup>1</sup> ) <input type="checkbox"/> Low energy <sup>3</sup> <input type="checkbox"/> Semi-heated <sup>2</sup> <input type="checkbox"/> Greenhouse <sup>4</sup> <input type="checkbox"/> Personal wireless service facility shelter <input type="checkbox"/> Equipment building <input type="checkbox"/> Standalone elevator hoistway		
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<b>Floor Area and Stories</b>	Floors Above Grade	Building Gross Conditioned Floor Area	Project Gross Conditioned Floor Area
	8	102,272	102,272

<b>General Compliance Path</b>	<input checked="" type="radio"/> Prescriptive/Component Performance <input type="radio"/> Total Building Performance <input type="radio"/> Target Performance Path		
	<b>Prescriptive / Component Performance</b> - Projects shall demonstrate compliance with all applicable mandatory and prescriptive requirements of this code. Refer to C401.2, Item 1 for more information. Compliance forms to include with a Prescriptive submittal: All applicable ENV, LTG, and MECH.		
	<b>Total Building Performance</b> - Projects complying via total building performance (TBP) shall include a summary of results from a whole building energy model per Section C407 and shall demonstrate compliance with all applicable mandatory provisions in this Code. Refer to Section C401.2, Item 2 for more information. Compliance forms to include with a TPB submittal: All applicable ENV, LTG, and MECH, and the Energy Analysis Summary.		
	<b>Target Performance Path</b> - Projects complying via the Target Performance Path (TPP) shall include a summary of results from a whole building energy model per Section C407 and shall demonstrate compliance with all applicable mandatory provisions of C407.2. Refer to Section C401.3 for more information. Compliance forms to include with a TPP submittal: All applicable ENV, LTG, and MECH, and the Energy Analysis Summary.		

- Note 1 - Refrigerated Spaces - They shall comply with the envelope and refrigeration equipment requirements in Section C410. Warehouse coolers and freezers shall also comply with the envelope requirements in C402. C410 takes precedence for overlapping requirements.
- Note 2 - Semi-heated Spaces - If heated with equipment other than electric resistance of limited capacity and not cooled may take an exemption for wall insulation. All other envelope assemblies shall comply with the thermal envelope provisions. See C402.1.1.2 for details.
- Note 3 - Low Energy spaces including unconditioned spaces are exempt from all provisions in WSEC Section C402 Building Envelope, however all other applicable provisions in the Code do apply including lighting, mechanical, service water heating, etc.
- Note 4 - Eligible greenhouses are defined as spaces that maintain a specialized sunlit environment that is used exclusively for cultivation, protection and maintenance of plants. Cooling with outside air and/or evaporative cooling is allowed, but cooling equipment that requires a condensing unit is NOT eligible. Radiant heating systems, gas or propane fired condensing heating systems and heat pumps with cooling disabled are allowed but all other heating systems are not.

# C406 Additional Efficiency Package Option Summary

PROJ-C406

2018 Seattle Energy Code Compliance Forms for Commercial Buildings including R2, R3, & R4 over 3 stories and all R1

Revised Mar 2021 rev. 1

## General Info

This PROJ-C406 form shall be provided as a cover sheet for all compliance form submittals. **Project Title** shall match plans title block.

**Project Title:** 4001 S WILLOW ST  
**Project Street Address:** 4001 S WILLOW ST  
**Project City, County, Zip:** SEATTLE, WA 98118  
**Project Owner or Rep:** OZ NAVIGATOR  
**Jurisdiction:** SEATTLE

**Date:** 06/01/2022

For SDCI Use

A minimum of 8 credits are required for new construction, and change in space conditioning or occupancy projects.

Select all packages included in the current project scope. Also select packages complied with under previous projects (shell and core, other tenant spaces in building, etc) that apply to this permit.

Buildings with multiple tenant spaces may comply with different options (mix & match).

Options are required for all space conditioning types.

Include discipline specific information for C406 options in ENV-SUM and LTG-SUM.

Refer to SBCC website for official interpretations regarding C406 provisions.

Efficiency Package	Occupancy Type			Current Scope	Completed in Shell and Core Permit
	Primary	Secondary	Tertiary		
	Group R-2	Group B	All Other		
	Credits Claimed				
C406.2 More efficient HVAC performance				<input type="checkbox"/>	<input type="checkbox"/>
C406.3.1 Reduced lighting power - 10%				<input type="checkbox"/>	<input type="checkbox"/>
C406.3.2 Reduced lighting power - 20%	3			<input checked="" type="checkbox"/>	<input type="checkbox"/>
C406.4 Enhanced digital lighting controls				<input type="checkbox"/>	<input type="checkbox"/>
C406.5 On-site renewable energy				<input type="checkbox"/>	<input type="checkbox"/>
C406.5 On-site renewable energy (1/3)	1	1		<input checked="" type="checkbox"/>	<input type="checkbox"/>
C406.5 On-site renewable energy (2/3)				<input type="checkbox"/>	<input type="checkbox"/>
C406.6 Dedicated outside air systems (DOAS)				<input type="checkbox"/>	<input type="checkbox"/>
C406.7 High performance DOAS				<input type="checkbox"/>	<input type="checkbox"/>
C406.8 Reduced service water heating energy use				<input type="checkbox"/>	<input type="checkbox"/>
C406.9 Reduced service water heating energy use (R-1/R-2)	5			<input checked="" type="checkbox"/>	<input type="checkbox"/>
C406.10 Enhanced envelope performance				<input type="checkbox"/>	<input type="checkbox"/>
C406.11 Reduced air infiltration				<input type="checkbox"/>	<input type="checkbox"/>
Total Credits For Each Occupancy Type		9	1		
Area of Occupancy Type		100293	1979		
Area-weighted Average Credits		8.8			

## C406 Comments:

**C406.3 Reduced lighting power.** Interior lighting within the whole building, building area, occupancy type, building addition or tenant space shall comply with Section C406.3.1 or C406.3.2. Dwelling units and sleeping units within the building shall comply with Section C406.3.3.

**C406.3.2 Reduced lighting power option 2.** The total connected interior lighting power calculated in accordance with Section C405.4.1 shall be 80 percent or less of the lighting power values specified in Table C405.4.2(1) times the floor area for the building types, or by using 80 percent or less of the total interior lighting power allowance calculated in accordance with Section C405.4.2.

**C406.3.3 Lamp fraction.** No less than 95 percent of the permanently installed light fixtures in dwelling units and sleeping units shall be provided by high efficacy lamps with a minimum efficacy of 65 lumens per watt. Where the conditioned floor area of residential dwelling units or sleeping units is separated from other building occupancies or building areas for the purposes of the C406 area weighted credit calculation, these dwelling or sleeping unit areas receive the credit weighting for reduced lighting power Option 1, referencing Section C406.3.1, in Table C406.1.

**C406.5 On-site renewable energy.** In addition to the renewable energy required by Section C412 and to renewable energy used to comply with any other requirement of this code, a whole building, building addition, building area, occupancy type, or tenant space shall be provided with on-site renewable energy systems with a rated peak renewable energy generating capacity of no less than 0.25 watts (or 0.85 BTU/h) per square foot of conditioned floor area based on the total conditioned floor area of the whole building, building addition or tenant space. The on-site renewable provided to comply with this option shall be separate from on-site renewables provided to comply with C406.8 or used to qualify for any exception in this code.

**C406.9 High performance service water heating in hotel and multifamily buildings.** For a whole building, building area, occupancy type, building addition, or tenant space with not less than 90 percent of the conditioned floor area being Group R-1 or R-2 occupancy, not less than 90 percent of the annual building service hot water energy use shall be provided by a heat pump system meeting the requirements of Section C404.2.3 plus the following:

1. The refrigerant used in the heat pump system shall have a global warming potential (GWP) no greater than 675.
2. No electric resistance heating capacity shall be provided.

### Exceptions to item 2:

1. Electric resistance heating is permitted for circulating system temperature maintenance and heat tracing of service hot water supply and return piping.
2. On-demand electric resistance water heaters for hand washing facilities are permitted in public toilet rooms. Prior to January 1, 2022, this efficiency package is allowed to be taken in addition to Section C406.8.



# Envelope Summary

ENV-SUM

2018 Seattle Energy Code Compliance Forms for Commercial Buildings including R2, R3, & R4 over 3 stories and all R1

Revised Mar 2021 rev. 1

<b>Project Info</b>  <i>Compliance forms do not require a password to use. Instructional and calculating cells are write-protected.</i>	<b>Project Title:</b> 4001 S WILLOW ST	<b>Date:</b> 06/01/2022
	<i>Applicant Information. Provide contact information for individual who can respond to inquiries about compliance form information provided.</i>	
	<b>Company Name:</b> BEE Consulting LLC	
	<b>Company Address:</b> 170 W Dayton St., Suite 206, Edmonds, WA 98020	
	<b>Applicant Name:</b> Pavlo Serdechnyi	
	<b>Applicant Email:</b> pavlo@bee-engineers.com	
<b>Project Description</b>		
<input checked="" type="checkbox"/> New Building <input type="checkbox"/> Addition <input type="checkbox"/> Alteration <input type="checkbox"/> No Envelope Scope		
<b>Envelope Project Scope</b> <i>Select all that apply.</i>		
<input type="checkbox"/> All Commercial <input type="checkbox"/> Group R - Commercial <input checked="" type="checkbox"/> Mixed Use - Commercial + Group R <input type="checkbox"/> Semi-heated <input type="checkbox"/> Refrigerated Cooler <input type="checkbox"/> Refrigerated Freezer <input type="checkbox"/> Equipment Building		
<b>Envelope Description</b> <i>Provide brief description of the project and relevant supporting documentation.</i>  <i>If project includes multiple Target Insulation Allowance areas, and/or is demonstrating compliance as an Addition + Existing, Alteration + Existing, or Addition + Alteration + Existing project, provide a brief summary of the approach to whole building compliance.</i>		
8 STORY MIXED-USE APARTMENT BUILDING WITH STREET-LEVEL RETAIL, 191 RESIDENTIAL UNITS AND 12 CAR PARKING STALLS.		
<b>Air Barrier Testing</b> <i>Air barrier testing is required for all new construction projects. Testing criteria is 0.25 cfm/ft<sup>2</sup> under test pressure of 0.3 inch w.g. To comply with C406.11, demonstrate that measured air leakage does not exceed 0.17 cfm/ft<sup>2</sup>.</i>		
<input checked="" type="checkbox"/> Air barrier testing per Section C402.5.1.2 included in project scope <input type="checkbox"/> Additional Efficiency Package Option - C406.11 Reduced Air Infiltration <input type="checkbox"/> Testing not required. Explanation:		
<b>Compliance Documentation Scope and Method</b>		
<b>Scope of This Calculation</b>		
<input checked="" type="checkbox"/> New Building <input type="checkbox"/> Addition <input type="checkbox"/> Alteration <input type="checkbox"/> No Envelope Scope		
<b>Target Insulation Allowance</b> <i>Sets the title and calculations in the compliance forms. Selection required to enable forms.</i>		
<input checked="" type="radio"/> Fully Conditioned - Commercial, Group R, Mixed Use <input type="radio"/> Semi-heated <input type="radio"/> Refrigerated Cooler <input type="radio"/> Refrigerated Freezer <i>If project includes more than one Target Insulation Allowance area, and/or if project includes addition and alteration areas complying independently, for each area complete an ENV-SUM form Rows 16-55 and either an ENV-PRESCRIPTIVE form, or ENV-UA + ENV-SHGC forms if demonstrating compliance via component performance.</i>		
<b>Envelope Compliance Path</b> <i>Selection required to enable forms.</i>		
<input type="radio"/> Prescriptive <input checked="" type="radio"/> Component Performance		
<b>Component Performance Calculation Adjustments</b>		
<input type="checkbox"/> Change of Occupancy (C503.2) / Conditioning (C505)/C407 - 10% higher UA allowed <input type="checkbox"/> Substantial Alteration (C503.8) - 15% higher than C402.1.5 UA allowed <input type="checkbox"/> Additional Efficiency Package Option - C406.8 Enhanced Envelope - 15% lower UA allowed		

# Envelope Summary, pg. 2

ENV-SUM

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Revised Mar 2021 rev. 1

Project Title: **4001 S WILLOW ST** Date: **06/01/2022**

## Additions

☐ Addition stand alone ☐ Addition + Existing

**Addition stand alone** - Complete Vertical Fenestration and Skylight Area Calculation. Enter total existing-to-remain wall, roof, vertical fenestration and skylight areas as EXISTING. Enter total addition envelope assembly areas as NEW. If resulting total building WWR exceeds 30% and/or SSR exceeds 5%, refer to C502.2.1 and C502.2.2 for prescriptive compliance alternatives. If complying via component performance, complete ENV-UA per instructions for addition stand alone projects.

**Addition + existing** - Complete ENV-UA per instructions for addition + existing projects.

## Alterations -

### Fenestration and Skylight

☐ Replacement windows only, or resulting total building WWR ≤ original WWR ☐ Total building WWR increased by alteration  
☐ Replacement skylights only, or resulting total building SRR ≤ original SRR ☐ Total building SRR increased by alteration

**WWR and SRR not increased** - Vertical Fenestration and Skylight Area Calculation not required.

**WWR and/or SRR increased** - Complete Vertical Fenestration and Skylight Area Calculation. Enter total existing-to-remain wall, roof, vertical fenestration and skylight areas as EXISTING. Enter total altered envelope assembly areas as NEW. If resulting total building WWR exceeds 30% and/or SSR exceeds 5%, refer to C503.3.2 and C503.3.3 for prescriptive compliance alternatives. If complying via component performance, complete ENV-UA per instructions for alteration + existing projects.

## Vertical Fenestration and Skylight Area Calculation

**Prescriptive Path** - Enter envelope sf values directly into this section of ENV-SUM for vertical fenestration, skylights, net walls and roof. For Additions and Alterations, refer to these sections in ENV-SUM for further instructions.

**Component Performance** - When this Envelope Compliance Path is selected, write-protection of this section is enabled. Enter envelope sf values for all assemblies into the ENV-UA form. Envelope information from

	Total Vertical Fenestration Area (rough opening)	NET Exterior Above Grade Wall Area	Total Skylight Area (rough opening)	NET Exterior Roof Area
New	17039	33874	0	12513
Existing	0	0	0	0
Total	17,039	33,874	0	12,513
	Vertical Fenestration-to-Wall Ratio (WWR) <b>33.5%</b>		Skylight-to-Roof Ratio (SRR)	

### Exempt Single Glass

Always enter exempt glazing area here.

Area \_\_\_\_\_

Enter area here and: if complying prescriptively exempt area MUST also be included in total vertical fenestration in cell D30; If complying via component performance do not enter exempt glazing on ENV-UA or ENV-SHGC.

### Mechanical Equipment Penetrations

Always enter mech. equipment area here.

Area \_\_\_\_\_

### Vertical Fenestration Area Compliance

Vertical Fenestration Area

Project exceeds maximum target vertical fenestration area. Target area adjustment applied to UA calculation. May comply prescriptively using a vertical fenestration alternate.

### Skylight Area Compliance

Skylight Area

NO SKYLIGHT PROPOSED. COMPLIES WITH MAXIMUM ALLOWANCE.

## Maximum Prescriptive Vertical Fenestration (%)

35% per C402.4.1.1

## Vertical Fenestration Alternates

☐ High performance fenestration U-factors and SHGC per C402.4.1.1.2  
☐ 50% or more of CONDITIONED floor area is within DLZ per C402.4.1.1.1

Show locations of qualifying daylight zone areas and ft² on project plans.

For Daylight Zone Area Calculations -  
a) Sidelight areas include primary + secondary daylight zone areas.  
b) Include overlapping toplight and sidelight daylight zone areas under Toplight.

### Daylight Zone Calculations

Daylight Zone Fenestration Alternate Not Selected. No Calculations Required	Sidelight Daylight Zone Area	Toplight Daylight Zone Area	Percent Daylight Zone Area

## Street Level Retail

If C402.4.1 Street Level Retail glazing exception taken for any portion of building read Street Level Retail instructions on Readme.

Street Level Retail with other areas

☐

Enter gross wall area per C402.4.1 exception requirements: **n/a**

Enter total window area in Street Level Retail qualified wall: **n/a**

Area of window transferred from other areas: **n/a**

# Envelope Summary, pg. 3

ENV-SUM

2018 Seattle Energy Code Compliance Forms for Commercial Buildings including R2, R3, & R4 over 3 stories and all R1

Revised Mar 2021 rev. 1

Project Title: <b>4001 S WILLOW ST</b>		Date: <b>06/01/2022</b>			
<b>Single Story Spaces Requiring Skylights</b>  <i>In these spaces a minimum of 50% of the floor area shall be within a skylight daylight zone (DLZ). Refer to C402.4.2 for requirements.</i>  <i>SRR = Skylight to roof ratio</i>	<i>List all enclosed spaces that exceed 2,500 ft², have ceiling height greater than 15 ft, and are space types required to comply with this provision. Indicate aperture with "AP" prefix ( AP 1.1%)</i>				
	Space	Area (ft²)	DLZ Area (ft²)	SRR or Aperture	Exception
<b>Envelope Exemptions</b>					
<b>Low Energy and Semi-heated Spaces</b>	<i>Low energy spaces per C402.1.1.1 are exempt from the thermal envelope provisions. Uncooled, semi-heated spaces heated by systems other than electric resistance are exempt from wall insulation provisions only per C402.1.1.2.</i>  <i>List all installed equipment in spaces claiming this exemption to verify eligibility based on installed peak heating and cooling capacity per sf.</i>				
<b>Equipment Buildings</b>  <i>Equipment buildings are exempt from the thermal envelope provisions per C402.1.2.</i>  <i>The following shall be met to be eligible: building size ≤ 500 sf, average wall/roof U-factor ≤ U-0.20, electronic equipment load ≥ 7 watts/sf, heating system output capacity ≤ 17,000 btu/h. Cooling system capacity not limited. Heat pumps can be larger than 17,000Btuh if cooling efficiency is 15% better than Table C403.3.2(2).</i>		Wall Insulation R-Value	Roof Insulation R-Value	Overall Average U-Factor	
	Equipment Building Envelope				
	Electronic equipment power (watts/sf)				
	Cooling system capacity (Btu/hr)				
	Heating system output capacity (Btu/hr)				
	Heat pump system capacity (Btu/hr)				
	Heat pump system cooling efficiency				
	Heat pump code required cooling efficiency				

# Component Performance Path, pg. 1

ENV-UA

2018 Seattle Energy Code Compliance Forms for Commercial Buildings including R2, R3, & R4 over 3 stories and all R1

Revised Mar 2021 rev. 1

<b>Project Title:</b> 4001 S WILLOW ST						<b>Date:</b> 06/01/2022				
<b>Target Insulation Allowance:</b> Fully Conditioned Space - Commercial, Group R, Mixed Use						For SDCI Use				
<b>Calculation Adjustments</b> None										
<b>Fenestration Area</b> as % gross above-grade wall area <b>33.5%</b> Max. Target: <b>35.0%</b>										
<b>Skylight Area</b> as % gross roof area Max. Target: <b>5.0%</b>										
<b>Vertical Fenestration Alternates:</b> None Selected on ENV-SUM										
<b>For Stand-alone Projects</b> <sup>14,15</sup>				Vertical Fenestration		Net Wall		User Note		
<b>Existing-to-remain Areas</b>				Skylights		Net Roof				
Envelope Component				Proposed UA			Target UA			
	Cavity+CI	Plan/Detail #	U-factor Source & Table # <sup>2</sup>	U-factor	x Area (A)	= UA (U x A)	U-factor	x Area (A) =	UA (U x A)	
Roofs	Deck	R=					0.027			
		R=						Above Deck Insulation	U-0.027	
		R=								
	Mtl Bld	R=						0.027		
		R=						Metal Building	U-0.027	
		R=								
	Joist/Rfr	R=						0.027		
		R=						Joist/single rafter	U-0.027	
		R=								
	Attic/Oth	R= 30+ (20:45)ci	R1B / A807 / Level 7	Table A101.5, Table A102.2.6(2)	0.015	670	10.1	0.021	12513	262.8
		R= 30+ (20:35)ci	R1B / A807 / Level 7	Table A101.5, Table A102.2.6(2)	0.017	1213	20.6	Single raft, attic, other	U-0.021	
		R= 30+ (20:25)ci	R1B / A807 / Level 7	Table A101.5, Table A102.2.6(2)	0.019	14	0.3			
		R= 30 + 53eff.	R1 / A807 / Level 8	Table A101.5, Table A102.2.6(2)	0.012	1230	14.8			
		R= 30+ (20:60)ci	R1 / A807 / Level 8	Table A101.5, Table A102.2.6(2)	0.013	6510	84.6			
		R= 30+ (20:45)ci	R1 / A807 / Level 8	Table A101.5, Table A102.2.6(2)	0.015	450	6.8			
		R= 30+ (20:40)ci	R1 / A807 / Level 8	Table A101.5, Table A102.2.6(2)	0.016	1285	20.6			
		R= 30+ (20:35)ci	R1 / A807 / Level 8	Table A101.5, Table A102.2.6(2)	0.017	368	6.3			
		R= 30+ (20:30)ci	R1 / A807 / Level 8	Table A101.5, Table A102.2.6(2)	0.018	302	5.4			
		R= 30+ (20:45)ci	R1A / A807 / Roof	Table A101.5, Table A102.2.6(2)	0.015	390	5.9			
R= 30+ (20:30)ci	R1A / A807 / Roof	Table A101.5, Table A102.2.6(2)	0.018	81	1.5					
Steel Frm	R= 19+10ci	N1, N2 / A804 / Levels 1-3	Table A103.3.6.1(1)	0.052	5756	299.3	0.055	5975	328.6	
	R= 13	M1 / A804 / Level 0	Table A103.3.6.1(1)	0.124	219	27.2	Steel/metal frame	U-0.055		
	R=									
Mtl Bld	R=						0.052			
	R=						Metal Building	U-0.052		
	R=									

Opaque Walls - Above Grade <sup>4,6,7</sup>	Wood/Oth	R= 25std	E0, E3, E4 / A804 / Roof	Table A103.3.1(8)	0.051	1424	72.6	0.051	22808	1163.2
		R= 25std	E0, E3, E4 / A804 / Levels 8-4	Table A103.3.1(8)	0.051	20944	1068.1	Wood Frame, other U-0.051		
		R= 25+15	E4B / A804 / Levels 8-4	Table A103.3.3(1)	0.040	440	17.6			
	Mass	R= 15ci	C2 / A804 / Levels 0-3	Table A103.3.7.1(2)	0.061	1965	119.9	0.057	4790	273.0
		R= 13+6ci	C4A / A804 / Levels 0-3	Table A103.3.7.1(2)	0.055	744	40.9	Mass Wall U-0.057		
		R= 10+13	C5 / A804 / Levels 1-2	Table A103.3.7.1(2)	0.058	607	35.2			
		R= 12ci	Slab edge / Level 2	Table A103.3.7.2	0.075	378	28.4			
		R= 12ci	Slab edge / Level 3	Table A103.3.7.2	0.075	399	29.9			
		R= 12ci	Slab edge / Level 4	Table A103.3.7.2	0.075	697	52.3			
	Transfer <sup>5</sup>	R= unins	Level 1	Table A103.3.7.2	0.741	62	45.9	0.200	221	44.2
		R= unins	Level 2	Table A103.3.7.2	0.741	159	117.8	Mass Transfer Deck U-0.20		
	Intr. Slab	R=						0.100		
		R=						Slab piercing wall ins U-0.10		
		R=								
Below Grd.	Wall <sup>4</sup>	R= 10ci	C2 / A804 / Elev. Pit.	Table A101.5	0.080	281	22.5	0.070	906	63.4
		R= 10ci	C2 / A804 / Level 0	Table A101.5	0.080	193	15.4	Assumed to be Mass Wall U-0.07		
		R= 13+6ci	C4A / A804 / Level 1	Table A103.3.7.1(2)	0.052	242	12.6			
		R= unins	Slab edge / Level 1	Table A101.5	0.373	190	70.9			
Floors <sup>8</sup>	Mass	R= 30ci	F8+G6 / Level 1	Table A105.1(3)	0.031	9014	279.4	0.031	12400	384.4
		R= 30ci	F8+G6 / Level 2	Table A105.1(3)	0.031	2180	67.6	Mass Floor U-0.031		
		R= 30ci	F8+G6 / Level 3	Table A105.1(3)	0.031	1206	37.4			
	Mtl Joist	R=						0.029		
		R=						Joist/Framing, metal U-0.029		
		R=								
	Wd Joist	R=						0.025		
		R=						Joist/Framing, wood U-0.025		
		R=								

Page 1 Subtotal	Area <sup>1</sup>	UA	Area <sup>1</sup>	UA
	59613	2638	59613	2520



# Component Performance Path, pg. 2

ENV-UA

2018 Seattle Energy Code Compliance Forms for Commercial Buildings including R2, R3, & R4 over 3 stories and all R1

Revised Mar 2021 rev. 1

<b>Project Title:</b> 4001 S WILLOW ST							<b>Date:</b> 06/01/2022		
<b>Fenestration Area</b> as % gross above-grade wall area <b>33.5%</b> Max. Target: <b>35.0%</b>							For Building Department Use		
<b>Skylight Area</b> as % gross roof area Max. Target: <b>5.0%</b>									
<b>Building Component</b>				<b>Proposed UA</b>			<b>Target UA</b>		
Ins. R		Plan/Detail #	F-factor Source & Table # <sup>9</sup>	F-factor	x Perimeter	= FP(F x P)	F-factor	x Perimeter =	FP (F x P)
Slab-on-grade <sup>8</sup>	Unheated	R=					0.540		
		R=					Slab-On-Grade U-0.55		
		R=							
	Heated	R=					0.550		
		R=					Heated Slab-On-Grade U-0.54		
		R=							
Schedule ID			U-factor Source <sup>10,11</sup>	U-factor	x Area (A)	= UA (U x A)	U-factor	x Area (A) =	UA (U x A)
Doors <sup>6,9</sup>	Swinging	1U1, 2U2, 2U3, 0S2	Table A107.1(1)	0.370	80	29.6	0.370	80	29.6
							Opaque Swing Doors U-0.37		
	Garage						0.600		
							Garage Door, <14% Glaz. U-0.60		
	Other						0.340		
							Opaque rollup & sliding U-0.34		
Vertical Fenestration <sup>6,11</sup>	AW, fixed	SF-A, SF-B, SF-C, SF-D, SF-E, R2	NFRC Certified	0.34	563	191.4	0.34	1138	386.9
			NFRC Certified	0.34	575	195.5	AW, Fixed U-0.34		
	AW, op.						0.36		
							AW, Operable U-0.36		
	Mtl entry	X1R1, X1C2, X1C3, X1C3.1	NFRC Certified	0.60	103	61.8	0.60	142	85.2
		X1S3, OC1	NFRC Certified	0.60	39	23.4	Metal Frame, Entrance Dr U-0.60		
	Other, fix	W3, W6-W8, W10, W14	See A210	0.26	1153	299.8	0.26	1359	353.3
		W16, W18	See A210	0.26	206	53.6	Non-AW, Fixed U-0.26		
	Other, op	Operable: W1, W2, W4, W5	See A210	0.26	7525	1956.5	0.28	14400	4032.0
		W9, W11-W13, W15, W17	See A210	0.26	425	110.5	Non-AW, Operable U-0.28		
		Casement door	See A210	0.26	493	128.2			
		Sliding Door	See A210	0.26	5957	1548.8			
Skylights <sup>11</sup>	All Types					0.45			
						All types U-0.45			
<b>Refrigerated Space Freezer Floors</b>				<b>Proposed UA</b>			<b>Target UA</b>		
CI		Plan/Detail #	U-factor Source & Table # <sup>2</sup>	U-factor	x Area (A)	= UA (U x A)	U-factor	x Area (A) =	UA (U x A)
Freezer Floor	R=								
	R=						Freezer Floor		
	R=								

	Area <sup>1</sup>	UA	Area <sup>1</sup>	UA
Page 2 Subtotal	17119	4599	17119	4887
Page 1 Subtotal	59613	2638	59613	2520
Project Total	76732	7237	76732	7407

TO COMPLY - The Proposed Total UA shall not exceed the Target Total UA.

Component Performance Compliance (UA)

UA COMPLIES

Refrigerated Space Windows In Doors<sup>12, 13</sup>

		Plan/Detail #	Description	Cooler / Freezer	Double Pane Glass	Triple Pane Glass	Inert Gas Filled	Heat Reflective Treated Glass
Glazing in Doors	In Door							
	Reach in							

**Note 1** - If vertical fenestration or skylight area exceeds maximum allowed per C402.4.1, then Target Area Adjustment of all applicable envelope elements will be calculated automatically by the compliance form. Refer to Target Area Adjustments worksheet for this calculation.

**Note 2** - Opaque assembly U-factors shall come from Appendix A or be calculated per approved method as specified in C402.1.5.1.

**Note 3** - Reserved.

**Note 4** - Semi-heated spaces - For spaces eligible for this wall insulation exception, the UA calculation excludes all wall assemblies. However, wall area values are required to run the window-to-wall ratio calculation. Enter into form all wall types in the semi-heated space. Enter the sf area of each wall type and enter "1" for the U-factor.

**Note 5** - Mass transfer slab edges must be covered with an assembly having an overall U-factor of 0.2.

**Note 6** - Demising walls, doors, and vertical fenestration separating spaces with different degrees of space conditioning (unconditioned, semi-heated, fully conditioned) shall be included only on the ENV-UA form for the space with the greatest degree of space conditioning.

**Note 7** - Enter mechanical equipment penetrations (C402.1.4.2) as the wall type of the surrounding wall. If total penetration area is less than or equal to 1% of net above grade wall (ENV-SUM, E34), the proposed U-factor shall be equal to that of the surrounding wall and does not need to be separately listed. If total penetration area is greater than 1% of net wall then the penetrations must be entered separately and the proposed U-factor shall be U-0.5.

**Note 8** - Concrete columns and walls penetrating the floor insulation and concrete slab floors directly above electrical vaults do not need to be listed as floors or slabs. These components comply without insulation while the remaining floor must be fully insulated.

**Note 9** - Slab-on-grade F-Factors shall come from Appendix A or calculated per approved method as specified in C402.1.5.1.

**Note 10** - Opaque door U-factors shall come from Appendix A or calculated per approved method as specified in C402.1.5.1. A door is defined as opaque if less than 50% of the door area has glazing.

**Note 11** - Fenestration assembly U-Factors shall be the manufacturer's NFRC product rating, which includes the glazing and frame, or shall be the default value per Section C303.1.3.

**Note 12** - Refrigerated Coolers - Target U-factors for cooler roof, wall and door assemblies are per C410. Enter proposed information under the most similar assembly type. Target F-factors for slab-on-grade floors are per C402. Target U-factors for floors that separate a cooler from a non-cooler space (unconditioned and conditioned) are per C402. Target U-factors for vertical fenestration (not within cooler doors) are per C402. Enter only the opaque portion of refrigerated space doors. Windows within doors and reach-in display case doors shall comply with C410 prescriptive requirements.

**Note 13** - Refrigerated Freezers - Target U-factors for freezer roof, wall and door assemblies are per C410. Enter proposed information under the most similar assembly type. Target U-factor for insulated freezer floors is per C410. Insulation is required under the entire freezer floor. Enter proposed information in the Freezer Floor section. If the freezer floor assembly rests on top of a standard floor, the vertical edge of the freezer floor shall be entered as a section of freezer wall. If freezer floor insulation is installed as integral to or applied underneath a slab-on-grade or exposed floor, this floor area shall be thermally broken from the surrounding floor. Enter proposed thermal break information in the Freezer Floor section and note it as In-Floor Thermal Break. Enter only the opaque portion of freezer doors. Windows within doors and reach-in display case doors shall comply with C410 prescriptive requirements.

**Note 14** - Stand alone projects - Enter total existing-to-remain sf areas for net above grade walls (including opaque doors), net roof, vertical fenestration and skylights in section provided at top of ENV-UA form. Enter UA information for new envelope assemblies in Building Components section.

**Note 15** - Addition + Existing, Alteration + Existing projects - Enter sf areas and estimated U-factors for all existing-to-remain envelope assemblies in Building Components section. Identify these assemblies as EXISTING in U-factor Source & Table # column. Enter UA information for new addition and altered envelope assemblies in Building Components section. Existing and new information will autofill into the Vertical Fenestration and Skylight Area Calculation section of ENV-SUM as all NEW. Does not affect calculation results.

# SHGC Calculation

# ENV-SHGC

2018 Seattle Energy Code Compliance Forms for Commercial Buildings including R2, R3, & R4 over 3 stories and all R1

Revised Mar 2021 rev. 1

<b>Project Title:</b> 4001 S WILLOW ST		<b>Date:</b> 06/01/2022	
<b>Target Insulation Allowance:</b> Fully Conditioned Space - Commercial, Group R, Mixed Use		For SDCI Use	
<b>Fenestration Area</b> as % gross above-grade wall area 33.5% Max. Target: 35%			
<b>Skylight Area</b> as % gross roof area Max. Target: 5%			
<b>Vertical Fenestration Alternates:</b> None Selected on ENV-SUM			
<p><i>Notes: 1 - Proposed vertical fenestration and skylight areas entered in ENV-SHGC must match proposed fenestration areas in ENV-UA.</i></p> <p><i>2 - If Target Area Adjustment is required per ENV-UA, then target areas will be automatically adjusted in ENV-SHGC. Refer to Target Area Adjustments worksheet for this calculation.</i></p> <p><i>3 - Fenestration assembly SHGC shall be the manufacturer's NFRC product rating, or shall be the default value per Section C303.1.3.</i></p> <p><i>4 - Fenestration that separates conditioned space from a non-conditioned space shall be included in this worksheet.</i></p>			
		User Note	

Skylights		Proposed SHGC			Target SHGC		
Sch. ID	Provide SHGC source and fenestration schedule ID	SHGC	x Area (A)	= SHGC x A	SHGC	x Area (A)	= SHGC x A
					0.32		
					SHGC		0.32
Skylight Totals							

All Non-North Vertical Fenestration+			Proposed SHGC			Target SHGC ++			
Sch. ID	Provide SHGC source and fenestration schedule ID	PF	SHGC	x Area (A)	= SHGC x A	PF Category	SHGC	x Area (A)	= SHGC x A
Non-metal, fixed: W6, W7, W8, W18	See A210		0.38	832	316	PF < 0.2	0.38	10527	4000.3
Non-metal, operable: W1, W2, W4, W5, W9, W13	See A210		0.38	4348	1652	0.2 ≤ PF < 0.5	0.46		
Non-metal, sliding	See A210		0.38	4557	1732	PF ≥ 0.5	0.61		
Non-metal, Casement	See A210		0.38	253	96	++ If projection factor (PF) credits are applied to the proposed design, Target SHGC will sum fenestration area by PF category.			
Metal, fixed: SF-E	NFRC Certified		0.38	495	188				
Metl. Entrance: X1C3.1, X1R1	NFRC Certified		0.38	42	16				
Non-North Window Totals			#####	4000.3			10527.0	4000.3	

+ If PF credit is applied, then vertical fenestration must be entered in the correct table according to orientation. If credit is not applied then all vertical fenestration can be entered in either table.

North Vertical Fenestration+			Proposed SHGC			Target SHGC++			
Sch. ID	Provide SHGC source and fenestration schedule ID	PF	SHGC	x Area (A)	= SHGC x A	PF Category	SHGC	x Area (A)	= SHGC x A
Non-metal, Casement	See A210		0.38	240	91	PF < 0.2	0.51	6512	3321.1
Non-metal, fixed: W3, W10, W14, W16	See A210		0.38	527	200	0.2 ≤ PF < 0.5	0.56		

Non-metal, operable: W1, W2, W4, W11, W12, W15, W17	See A210		0.38	3602	1369	PF ≥ 0.5	0.61		
Non-metal, sliding	See A210		0.38	1400	532	++ If projection factor (PF) credits are applied to the proposed design, Target SHGC will sum fenestration area by PF category.			
Metal, fixed: SF-A, SF-B, SF-C, SF-D, R2	NFRC Certified		0.38	643	244				
Metal, Entrance: X1R1, X1S3, X1C2, X1C3, OC1	NFRC Certified		0.38	100	38				
North Window Totals				6512.0	2474.6			6512.0	3321.1

TO COMPLY - The Proposed Total SHGC x A shall not exceed the Target Total SHGC x A.

Total (Skylight + Window)

Area	SHGC x A
17039.0	6474.8

Area	SHGC x A
17039.0	7321.4

Component Performance Compliance (SHGC)

**SHGC COMPLIES**

Building Permit Plans Checklist, pg. 1				ENV-CHK	
2018 Seattle Energy Code Compliance Forms for Commercial Buildings including R2, R3, & R4 over 3 stories and all R1				Revised Mar 2021 rev. 1	
Project Title: 4001 S WILLOW ST			Date 06/01/2022		
The following information is necessary to check a building permit application for compliance with the building envelope requirements in the Seattle Energy Code, Commercial Provisions.					
Applicability (yes,no,na)	Code Section	Component	Compliance information required in permit documents	Location in Documents	SDCI Notes
SCOPE					
na	C402.1.1.1	Low energy spaces	Identify low energy spaces on plans; include calculations if applicable that demonstrate eligibility for envelope provisions exemption		
na	C402.1.1.2	Semi-heated spaces	Identify semi-heated spaces on plans, include mechanical heating system type and calculations that demonstrate eligibility for wall insulation exemption		
na	C402.1.1.3	Greenhouse spaces	Identify greenhouse spaces on plans; include non-opaque assembly information and mechanical heating system type if applicable, that demonstrates eligibility for envelope provisions exemption		
no	C402.1.2	Equipment buildings	Provide building sf area, average wall and roof U-factor, installed electrical and mechanical equipment information and heating setpoint restriction, that demonstrates eligibility for envelope provisions exemption		
na	C402.1.2.1	Standalone elevator hoistways	Provide building area, average wall and roof U-factor, installed mechanical equipment information and heating setpoint restriction, that demonstrates eligibility for envelope provisions exemption		
na	C410.2	Walk-in cooler and freezer spaces	Identify walk-in cooler and freezer spaces on plans; including site assembled, site constructed and prefabricated units		
na	C410.2	Warehouse cooler and freezer spaces	Identify warehouse cooler and freezer spaces on plans		
na	C101.4.1	Mixed residential & commercial building	Identify spaces with different occupancy requirements on plans		
na	C503.2	Change of space conditioning	Identify on plans existing unconditioned spaces changing to semi-heated or conditioned space, and existing semi-heated spaces changing to conditioned space, and uncooled spaces changing to cooled; provide calculations for existing and final level of space conditioning		
na	C503.8	Substantial alterations	Identify on plans building areas undergoing substantial alteration.		
na	C505.1	Change of occupancy	Identify on plans existing F, S and U-occupancy spaces undergoing a change in occupancy		
			Group R spaces permitted before July 1, 2002 that are undergoing a change to a commercial occupancy shall be identified on plans		
			Non-Group R occupancy spaces undergoing a change to Group R shall be identified on plans		
ENVELOPE PROVISIONS					
yes	C103.2 C103.6.3 C402.1.3 C402.1.4 C402.1.5	Compliance documentation	Indicate envelope insulation compliance path and provide applicable forms; ENV-PRESCRIPTIVE or ENV-UA / ENV-SHGC for component performance	BE900	
			If complying via component performance, demonstrate that the Proposed Total UA is equal to or less than the Allowable Total UA		
			If complying via total building performance, demonstrate that the Proposed Total UA is equal to or less than 110% of the Allowable Total UA.		
yes	C303.1.1 C303.1.2	Insulation identification	Indicate identification mark shall be applied to all insulation materials and insulation installed such that the mark is readily observable during inspection	A800-A804, A806, A807	
yes	C303.1.3 C402.4.3	Fenestration product rating	Indicate fenestration products shall be labeled with NFRC U-factor, SHGC, VT and leakage rating, or if products do not have an NFRC rating, indicate applicable Chapter 3 default values	A200, A201, A210, A211	
yes	C303.2	General insulation installation	Indicate installation methods, thicknesses, densities and clearances to achieve the intended R-value of all insulation materials; Where two or more layers of rigid insulation will be used, indicate that edge joints between layers are staggered, or exception taken	A800-A804, A806, A807	
yes	C103.2 C402.2.1	Roof assembly insulation	Indicate R-value(s) of cavity/continuous insulation on roof sections;	A807	
			Indicate framing materials on roof sections;		
			Indicate method of framing for ceilings below vented attics and vaulted ceilings per A102.2 (std, adv);		
			Provide area weighted average U-factor calculation for insulation whose thickness varies by 1 inch or less;		
			Indicate effective U-factors of tapered insulation entirely above deck per A102.2.6; include roof configuration and slope, maximum R-value at peak and minimum R-value at low point for all roof surfaces		
na	C402.2.1.1	Skylight curb insulation	Indicate curb insulation R-value on roof section if not included in skylight NFRC rating		
na	C402.2.1.2	Rooftop HVAC equipment curbs	Indicate rooftop HVAC equipment curb insulation R-value on roof section		
yes	C103.2 C402.2.3 C402.2.4 C303.2.1	Above/below grade wall insulation	Indicate R-value(s) of cavity/continuous insulation on wall sections;	A800-A804	
			Indicate framing materials on wall sections;		
			Indicate method of framing for wood construction per A103.2 (std, int, adv);		
			Indicate material density category, wall weight and heat capacity for qualifying mass walls;		
			Indicate method of protection of exposed exterior basement/crawlspace wall insulation		

Building Permit Plans Checklist, pg. 2				ENV-CHK	
2018 Seattle Energy Code Compliance Forms for Commercial Buildings including R2, R3, & R4 over 3 stories and all R1					
Project Title: 4001 S WILLOW ST				Date	06/01/2022
Applicability (yes,no,na)	Code Section	Component	Compliance information required in permit documents	Location in Documents	Building Department Notes
yes	C103.2 C402.4.4	Opaque doors	Indicate rated U-factor (swinging) or R-value (non-swinging - roll-up/sliding) on wall sections or in door schedules - applies to doors with less than 50% glazed area	A200, A201	
na	C402.4.4	Garage doors	Indicate rated U-factor for sectional and tilt-up garage doors on wall sections or in door schedules along with the percent glazing; garage doors with 14%-50% glazing shall comply as opaque nonswinging doors		
na	C402.1.3 C402.1.4	Continuous Insulation	For all assemblies containing continuous insulation indicate the type of fasteners being used, the material used in the fastener, other penetrations of the insulation, and provide a calculation of the total area of penetrations as a percent of the component area.		
yes	C402.2.5	Floor over outdoor or unconditioned space insulation	Indicate R-value(s) of cavity/continuous insulation on floor sections;	A806	
			Indicate framing material on floor sections;		
			Indicate material density category and weight of qualifying mass floors		
na	C402.2.6 C303.2.1	Slab-on-grade floor insulation	Indicate R-value of continuous insulation on wall section or foundation detail;		
			Indicate insulation extends down vertically and/or horizontally the required distance from top of slab;		
			Indicate method of protection of exposed exterior slab edge insulation		
na	C402.2.6 C303.2.1	Radiantly heated slab-on-grade floor insulation	Indicate R-value of continuous insulation on wall section or foundation detail;		
			Indicate insulation extends down vertically from top of slab and then horizontally under the entire slab;		
			Indicate method of protection of exposed exterior slab edge insulation		
na	C402.2.8	Radiant heating system insulation	Indicate insulation R-value behind radiant panels, U-bend/headers and bottom surface of radiantly heated floors (other than radiantly heated slab-on-grade)		
na	C402.2.9	Cantilevered balconies	Provide R-10 thermal break at cantilevered concrete decks and balconies. For UxA calculation or energy modeling where no thermal break is provided, use the "exposed concrete" value from Table A103.3.7.2.		
na	C402.2.10	Intersection between fenestration frame and opaque wall	Align outer glass layer within 2 inches of continuous insulation layer. Insulate any space between fenestration frame and exterior of wall framing with R-3 insulation.		
no	C402.4, Exception	Single glazing for security or revolving doors	Up to 1% of exterior wall area can be single glazing, where used for security or revolving doors.		
yes	C402.4.1 C502.2.1 C503.3.2	Vertical fenestration maximum area	Provide total gross sf area of all above grade wall elements and rough opening sf area of all vertical fenestration elements in the building, for the prescriptive max allowed window-to-wall ratio (WWR) calculation in the WSEC envelope compliance reports; demonstrate compliance for each space conditioning category separately	BE900	
na	C402.4.1, Exception	Street level retail glazing	For street level retail or other occupancies where Seattle Land Use Code requires transparency, up to 75% of the street-level wall can be glazing		
na	C402.4.1.1 C405.2.4.1 C502.2.1	Increased prescriptive maximum vertical fenestration area with daylight zones and controls	Provide calculations showing that not less than 50% of the total conditioned floor area is within a daylight zone; demonstrate compliance for each space conditioning category separately		
			Indicate in envelope plans that all lighting fixtures located within daylight zones shall be provided with daylight responsive controls per Section C405.2.4.1		
			Indicate that the VT of vertical fenestration is at least 1.1 times the rated SHGC or no less than VT-0.55, whichever is greater		
na	C402.4.1.3 C502.2.1 C503.3.2	Increased prescriptive maximum vertical fenestration area with high-performance glazing	Indicate high performance U-factors and SHGC values in fenestration schedules;		
			Indicate if an area-weighted U-factor is used for multiple fenestration elements within the same fenestration category per Table C402.4; provide U-factor calculations		
na	C402.1.5	Wall/vertical fenestration target area adjustment	Indicate if component performance with target area adjustment will be used to account for vertical fenestration area in excess of the prescriptive maximum allowed; include target area adjustment in WSEC envelope compliance reports		
na	C402.4.1 C502.2.2 C503.3.3	Skylight maximum area	Provide total gross sf area of roof, and rough opening sf area of all skylight elements in the building, for the prescriptive max allowed skylight-to-roof ratio (SRR) calculation in the WSEC envelope compliance reports; demonstrate compliance for each space conditioning category separately		
na	C402.1.5.2	Roof/skylight target area adjustment	Indicate if component performance with target area adjustment will be used to account for skylight area in excess of the prescriptive maximum allowed; include target area adjustment in WSEC envelope compliance reports		
yes	C402.4 C402.4.3.4 C303.1.3	U-factors, SHGC and VT for all fenestration assemblies	Indicate U-factors, SHGC and VT values in fenestration schedules;	A210, A211, BE900	
			Indicate if an area-weighted U-factor is used for multiple fenestration elements within the same fenestration category per Table C402.3; provide U-factor calculations		
			Indicate if values are NFRC or default; if default then specify frame type, glazing layers, gap width, low-e coatings, gas-fill		
na	C402.4.3	Permanent shading devices	For windows with overhangs or permanent projection shading devices, provide projection factor calculations (Equation C4-6) and associated minimum SHGC for north and non-north orientations		

Building Permit Plans Checklist, pg. 3

ENV-CHK

2018 Seattle Energy Code Compliance Forms for Commercial Buildings including R2, R3, & R4 over 3 stories and all R1

Project Title: 4001 S WILLOW ST				Date	06/01/2022
Applicability (yes,no,na)	Code Section	Component	Compliance information required in permit documents	Location in Documents	Building Department Notes
na	C402.4.2	Single story spaces requiring skylights	Provide list of enclosed, single story spaces that exceed 2,500 sf; for each space identify the space use, floor area, floor to ceiling height, whether skylights are installed, and any exception taken;		
			Provide calculations for percentage of conditioned floor area located within a toplit daylight zone; if exception is taken for spaces where the total floor area minus the sidelit zone area is less than 2,500 sf, include percentage of conditioned floor area located within a sidelit daylight zone in calculations		
			Provide calculations for percentage of skylight area in each space over 2,500 SF, OR;		
			Provide calculations for skylight effective aperture (Equation C4-5) for each space over 2,500 SF;		
			Indicate haze factor of skylight glazing material or diffuser		
na	C410.2	Walk-in and warehouse cooler and freezer envelope	Indicate insulation R-value in cooler and freezer wall and ceiling assemblies		
			Indicate cooler and freezer door insulation R-value; indicate method of minimizing infiltration (strip doors, curtains, spring-hinged doors, etc); provide automatic door closure (or note exception taken)		
			For transparent reach-in doors and fixed windows, indicate number of glass panes (double or triple pane); identify whether the interstitial spaces between panes is filled with inert gas or if panes are heat-reflective treated glass		

ADDITIONAL EFFICIENCY PACKAGE OPTION - ENHANCED ENVELOPE PERFORMANCE

na	C406.8	Enhanced envelope performance	To comply with additional efficiency package option, demonstrate envelope insulation compliance via component performance; provide ENV-UA / ENV-SHGC compliance forms; verify that building total UA is 15% lower than the Code target UA		
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AIR LEAKAGE

yes	C402.5.1.1	Air barrier construction and sealing	Identify location and provide diagram of continuous air barrier in plans and sections;	BE700, BE800	
			Provide details for all joints, transitions in materials, penetrations in air barrier and note method of sealing (caulked, gasketed, or other approved method)		
na	C402.5.3	Rooms containing open combustion fuel burning appliances used for space conditioning	Indicate that room(s) containing non-direct vent appliances is isolated from conditioned space by the thermal envelope with a sealed air barrier, including doorway gasketing and sealing around ductwork and piping penetrations;		
			Indicate walls, floor and ceiling of the room envelope are insulated to the same level required for exterior envelope, and combustion air ductwork that passes thru conditioned space is insulated to at least R-8		
yes	C402.5.4	Access openings and doors to shafts, chutes, stairways and doors	Indicate locations of all doors and access openings to shafts, chutes, stairways and elevator lobbies;	A300-A309	
			Indicate method of sealing of these openings (gasketing, weatherstripping, other sealing method); or exception taken		
na	C402.5.5 C403.3.7.8	Outdoor air intakes, exhausts and relief openings	Indicate locations of all stairway enclosure, elevator shaft and building pressurization relief openings, outside air intakes and exhaust openings;		
			Note in envelope plans that all relief, outside air intake and exhaust openings shall be provided with dampers in accordance with Mechanical Section C403.7.8		
Yes	C402.5.8	Recessed lighting in building envelope	Indicate method of sealing between light fixture housing and wall or ceiling;	BE800	
			Note in envelope plans that all recessed lighting fixtures shall be IC rated and have an air leakage rating not greater than 2 cfm per ASTM E283 test; include these requirements in lighting fixture schedules		
na	C402.5.6	Loading dock seals	Indicate weather seal at cargo and loading dock doors		
yes	C402.5.7	Vestibules	Indicate locations and dimensions of vestibules for building entrances; also indicate vestibule information for exit-only doors in buildings where separate doors for entering and exiting are provided;	A2.01	
			Indicate locations of all building entrances and exit-only doors provided with an air curtain in lieu of a vestibule;		
			Indicate exception and criteria utilized for all building entrances and exit-only doors that do not have a vestibule or air curtain;		
			Indicate required performance for air curtains installed per Exception 7;		
			For unconditioned vestibules, indicate which envelope assembly (interior or exterior) complies with the requirements for a conditioned space		
yes	C103.2 C402.5.1.2 R402.4.1.2	Building air leakage test	Indicate where doors are provided only to access outdoor seating areas		
			Indicate in project documents that building enclosure air leakage testing is required for WSEC compliance;	BE800	
			Provide area calculations that account for all six sides of the air barrier boundaries;		
			For commercial buildings, indicate that building enclosure air leakage testing shall be performed per ASTM C779 (or equivalent method approved by the code official) and the target leakage rate is 0.25 cfm/ft2 (1.5 L/s*m2) at 0.3 in. wg (75 Pa);		
			If the building is mixed residential / commercial and three stories or less above grade plane, indicate which building enclosure air leakage test procedure will be used for the Group R-2 / R-3 areas (Section R402.4.1.2 or C402.5.1.2); if per R402.4.1.2, indicate that the target leakage rate is 5 air changes per hour at 0.2 in. wg (50 Pa)		
yes			Include the following requirements in project documents: (1) Submit building enclosure air leakage test reports to jurisdiction and owner; (2) If initial test result exceeds 0.25 cfm/ft2 (1.5 L/s*m2), indicate that inspection and all practical corrective actions be completed and documented in the air leakage test report and the building shall be re-tested; (3) Indicate that corrective measures and retesting must be repeated until the test result is 0.40 cfm/ft2 (2.0 L/s*m2) or less; (4) Include air barrier test report in project close out documentation provided to building owner.		

Building Permit Plans Checklist, pg. 4				ENV-CHK	
2018 Seattle Energy Code Compliance Forms for Commercial Buildings including R2, R3, & R4 over 3 stories and all R1				Revised Mar 2021 rev. 1	
Project Title: 4001 S WILLOW ST			Date 06/01/2022		
Applicability (yes,no,na)	Code Section	Component	Compliance information required in permit documents	Location in Documents	Building Department Notes
ADDITIONAL EFFICIENCY PACKAGE OPTION - REDUCED AIR INFILTRATION					
na	C406.9	Reduced air infiltration	To comply with additional efficiency credit, indicate in project documents that the building enclosure air leakage test results shall not exceed 0.17 cfm/ft2 at 0.3 in. wg (75 Pa); all documentation requirements per C103.2 and C402.5.1.2 apply		
ALTERATIONS					
na	C503.1 C503.3.1	Roof alteration - insulation	For a roof alteration where existing ceiling cavities are exposed, indicate cavities are insulated to full depth at minimum nominal value of R-3.0 per inch		
			For a roof covering replacement where insulation is installed entirely above the roof deck, indicate insulation complies with requirements for new construction per Tables C402.1.3 or C402.1.4		
na	C503.1	Wall and floor alteration - insulation	For a wall or floor alteration (floor over outdoor or unconditioned space) where existing envelope cavities are exposed, indicate cavities are insulated to full depth at minimum nominal value of R-3.0 per inch		
na	C503.3.2	Addition of vertical fenestration	Where the addition of new vertical fenestration results in a window-to-wall ratio (WWR) exceeding the prescriptive maximum allowed per C402.4.1, demonstrate method of compliance (prescriptive vertical fenestration alternate, component performance with target area adjustment for the alteration area and existing-to-remain areas combined, or total building performance per C407); demonstrate for each space conditioning category separately		
na	C503.3.3	Addition of skylights	Where the addition of new skylights results in a skylight-to-roof ratio (SRR) exceeding the prescriptive maximum allowed per C402.4.1, demonstrate method of compliance (component performance compliance with target area adjustment for the alteration area and existing-to-remain areas combined, or total building performance per C407), demonstrate for each space conditioning category separately		
na	C103.2 C103.6.3 C503.2 C505.1	Change in space conditioning or occupancy compliance documentation	Indicate envelope alteration thermal performance compliance path (prescriptive or component performance with 110% allowance); provide WSEC envelope compliance reports		
			If complying via total building performance with 110% allowance, provide a list of all proposed envelope component types, areas and U-values		
na	C503.8	Substantial alterations	Where a project is determined to be a substantial alteration, indicate which compliance path from Section C503.8.3 is selected and provide required calculations		
PROJECT CLOSE OUT DOCUMENTATION					
yes	C103.6.3	Project close out documentation requirements	Indicate in plans that project close out documentation is required including applicable WSEC envelope compliance forms and calculations, and fenestration NFRC rating certificates	BE900	

If "no" is selected for any question, provide explanation: