

Project Summary, pg 1

PROJ-SUM

2015 WSEC Compliance Forms for Commercial Buildings including R2, R3, & R4 over 3 stories and all R1

Revised Oct 2017

General Info <i>PROJ-SUM form shall be provided as a cover sheet for all compliance form submittals. Project Title shall match project plans title block.</i>	Project Title: Puyallup Corporate Park	Date: 4/3/2020
	Project Street Address: East Main Avenue at Linden Lane	For Building Department Use
	Project City, County, Zip: Puyallup, Washington 98032	
	Project Owner or Rep: NELSON - Nelco Architecture, Inc.	
	Jurisdiction: City of Puyallup, Washington	

Project Description <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>	New Construction and Additions <input checked="" type="checkbox"/> New Building <input type="checkbox"/> Building Addition
	Existing Building Retrofit <input type="checkbox"/> Alteration <input type="checkbox"/> Change of Occupancy <input type="checkbox"/> Change in Space Conditioning <input type="checkbox"/> Historic Building
Building Elements Scope - Select all that apply <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	

Occupancy Type	<input checked="" type="radio"/> All Commercial <input type="radio"/> Group R - R2, R3, & R4 over 3 stories and all R1 <input type="radio"/> Mixed Use
	<p>Mixed Use - Building is greater than three stories above grade and it has both Commercial and Group R occupancies.</p> <p>Mixed Occupancy - 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.</p>

Space Conditioning Categories	<i>Select all that apply to the scope of project</i> <input type="checkbox"/> Fully Conditioned <input checked="" type="checkbox"/> Semi-heated ² <input type="checkbox"/> Refrigerated Spaces (Warehouse and/or Walk-in ¹) <input type="checkbox"/> Low Energy Space Category ³
	Eligible Low Energy Spaces <input type="checkbox"/> Unconditioned <input type="checkbox"/> Low energy heating/cooling capacity <input type="checkbox"/> Wireless service equipment shelter <input type="checkbox"/> Greenhouse ⁴ <input type="checkbox"/> Equipment building

Floor Area and Stories	Floors Above Grade	Building Gross Conditioned Floor Area	Project Gross Conditioned Floor Area
	1	N/A	N/A

General Compliance Path	<input type="radio"/> Compliance Method 1 - General <input checked="" type="radio"/> Compliance Method 2 - Total Building
	<p>Compliance Method 1 - 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.</p> <p>Compliance Method 2 - 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 TBP submittal: PROJ-SUM, ENV-CHK, LTG-EXT, LTG-CHK, and all MECH forms except MECH-ECONO and MECH-VENT (pending).</p>

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 precedent for overlapping requirements.

Note 2 - Semi-heated Spaces - If heated with equipment other than electric resistance may take an exemption for wall insulation. All other envelope assemblies shall comply with the thermal envelope provisions.

Note 3 - Exemptions For Low Energy Spaces - Low Energy 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 Space Conditioning For Low Energy Greenhouses - 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, and any form of heating equipment, are allowed under the Low Energy Greenhouse category. Greenhouses with cooling equipment that requires a condensing unit are NOT eligible.

General Info	Project Title: Puyallup Corporate Park	Date: 4/3/2020	
<p>C406 Additional Efficiency Package Options Summary</p> <p><i>A minimum of two Options are required for new construction, and change in space conditioning or occupancy projects.</i></p> <p><i>Select all Options included in the current project scope. Also select Options complied with under previous projects (shell and core, other tenant)</i></p> <p><i>Buildings with multiple tenant spaces may comply with different options (mix & match).</i></p> <p><i>Options are required for all space conditioning categories.</i></p> <p><i>Include discipline specific information for C406 options in ENV-SUM, LTG-SUM and</i></p> <p><i>Refer to SBCC website for official interpretations regarding C406 provisions.</i></p>	Building level efficiency options:	Current Scope	Previous Projects
	C406.8 Enhanced envelope performance	<input type="checkbox"/>	<input type="checkbox"/>
	C406.9 Reduced air infiltration	<input type="checkbox"/>	<input type="checkbox"/>
	C406.5 On-site renewable energy	<input type="checkbox"/>	<input type="checkbox"/>
	Building area level efficiency options		
	C406.2 More efficient HVAC equipment	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	C406.6 Dedicated outside air systems (DOAS)	<input type="checkbox"/>	<input type="checkbox"/>
	C406.7 Reduced energy use in service water heating	<input type="checkbox"/>	<input type="checkbox"/>
	C406.3 Reduced lighting power	<input type="checkbox"/>	<input type="checkbox"/>
	C406.4 Enhanced digital lighting controls	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>C406 Comments:</p> <p>Additional efficiency options will be included with the Tenant Improvement permit submittals</p>			

Envelope Summary

ENV-SUM

2015 WSEC Compliance Forms for Commercial Buildings including R2, R3, & R4 over 3 stories and all R1

Revised Oct 2017

Project Info Applicant Info. Provide contact information for individual who can respond to inquiries about information provided.	Project Title: Puyallup Corporate Park	Date: 04/03/2020
	Company Name: NELSON - Nelco Architecture, Inc.	For Building Department Use
	Company Address: 1200 Fifth Avenue, Suite 1300, Seattle, WA 98101	
	Applicant Name: Errol Ramirez	
	Applicant Phone: (206) 408-8633	
	Applicant Email: ERamirez@nelsonww.com	

Project Description	<input checked="" type="checkbox"/> New Building <input type="checkbox"/> Addition <input checked="" type="checkbox"/> Alteration <input type="checkbox"/> No Envelope Scope
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Envelope Project Scope Select all that apply.	<input checked="" type="checkbox"/> All Commercial <input type="checkbox"/> Group R - Commercial <input 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
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Envelope Description Provide brief description of the project and relevant supporting documentation. 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.	One-story semi-heated tilt-up concrete warehouse shell building with glazed office nodes and roof skylights.
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Air Barrier Testing Air barrier testing is required for all new construction projects. Testing criteria is 0.40 cfm/ft ² under test pressure of 0.3 inch w.g. To comply with C406.9, demonstrate that measured air leakage of building envelope	<input checked="" type="checkbox"/> Air barrier testing per Section C402.5.1.2 included in project scope <input type="checkbox"/> Additional Efficiency Package Option - C406.9 Reduced Air Infiltration <input type="checkbox"/> Testing not required. Explanation: _____
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Compliance Documentation Scope and Method

Scope of This Calculation	<input checked="" type="checkbox"/> New Building <input type="checkbox"/> Addition <input checked="" type="checkbox"/> Alteration <input type="checkbox"/> No Envelope Scope
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Target Insulation Allowance Sets the title and calculations in the compliance forms. Selection required to enable forms.	<input type="radio"/> Fully Conditioned - Commercial, Group R, Mixed Use <input checked="" type="radio"/> Semi-heated <input type="radio"/> Refrigerated Cooler <input type="radio"/> Refrigerated Freezer 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 16-46 and either an ENV-PRESCRIPTIVE form, or ENV-UA + ENV-SHGC forms if demonstrating compliance via component performance.
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Envelope Compliance Path Selection required to enable forms.	<input type="radio"/> Prescriptive <input checked="" type="radio"/> Component Performance
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Component Performance Calculation Adjustments	<input type="checkbox"/> Change of Occupancy (C503.2) / Conditioning (C505) - 10% higher UA allowed <input type="checkbox"/> Additional Efficiency Package Option - C406.8 Enhanced Envelope - 15% lower UA required
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Additions <input type="radio"/> Addition stand alone <input type="radio"/> 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.
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Alterations - Fenestration and Skylight	<input type="checkbox"/> Replacement windows only, or resulting total building WWR ≤ original WWR <input type="checkbox"/> Total building WWR increased by alteration <input type="checkbox"/> Replacement skylights only, or resulting total building SRR ≤ original SRR <input type="checkbox"/> 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.	

Project Title: Puyallup Corporate Park			Date: 04/03/2020		
Vertical Fenestration and Skylight Area Calculation <i>Prescriptive Path</i> - 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. <i>Component Performance</i> - 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 ENV-UA will auto-fill into this section of ENV-		Total Vertical Fenestration Area (rough opening)	NET Exterior Above Grade Wall Area	Total Skylight Area (rough opening)	NET Exterior Roof Area
	New	5,494	63,170	1,856	194,944
	Existing	0	0	0	0
	Total	5,494	63,170	1,856	194,944
	Vertical Fenestration-to-Wall Ratio (WWR)	8.0%	Skylight-to-Roof Ratio (SRR)	0.9%	
Vertical Fenestration Area Compliance	VERTICAL FENESTRATION AREA COMPLIES WITH MAXIMUM ALLOWANCE				
Skylight Area Compliance	SKYLIGHT AREA COMPLIES WITH MAXIMUM ALLOWANCE				
Vertical Fenestration Alternates	<input type="radio"/> High performance fenestration U-factors and SHGC per C402.4.1.3 <input type="radio"/> Dedicated outdoor air system per C402.4.1.4 and C403.6				
Show locations of qualifying daylight zone (DLZ) areas and ft ² 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. c) Net floor area definition in Chapter 2.	<input type="radio"/> In buildings ≥ 3 stories, 25% or more of NET floor area is in DLZ per C402.4.1.1 <input type="radio"/> In buildings < 3 stories, 50% or more of CONDITIONED floor area is within DLZ per C402.4.1.1				
	Daylight Zone Calculations				
		Daylight Zone Fenestration Alternate	Sidelight Daylight Zone Area	Toplight Daylight Zone Area	Percent Daylight Zone Area
	Not Selected. No Calculations Required				
Spaces in Single Story Building Requiring Skylights	List all enclosed spaces that exceed 2,500 ft ² , 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%)				
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. SRR = Skylight to roof ratio	Space	Space Area (ft ²)	DLZ Area (ft ²)	SRR or Aperture	Exception
Envelope Exemptions					
Low Energy and Semi-heated Spaces	Low energy spaces per C402.1.1 Item 1 are exempt from the thermal envelope provisions. Semi-heated spaces heated by systems other than electric resistance are exempt from wall insulation provision only per C402.1.1.1. Complete Low Energy and Semi-Heated Spaces table in MECH-SUM to verify eligibility based on installed peak heating and cooling capacity per sf.				
Equipment Buildings			Wall Insulation R-Value	Roof Insulation R-Value	Overall Average U-Factor
	Equipment Building Envelope				
			Electronic equipment power (watts/sf)		
			Heating system output capacity (Btu/hr)		
		Cooling capacity (Yes/No)			
Equipment buildings are exempt from the thermal envelope provisions per C402.1.2. 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					

Component Performance Path, pg. 1

ENV-UA

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Project Title: Puyallup Corporate Park						Date: 04/03/2020				
Target Insulation Allowance Semi-heated Space						For Building Department Use				
Calculation Adjustments Semi-heated space - walls excluded from proposed and target total UA										
Fenestration Area as % gross above-grade wall area 8.0% Max. Target: 30.0%										
Skylight Area as % gross roof area 0.9% Max. Target: 5.0%										
Vertical Fenestration Alternates: None Selected on ENV-SUM										
For Stand-alone Projects ^{13,14} Vertical Fenestration						User Note				
Existing-to-remain Areas Skylights						Net Wall				
Existing-to-remain Areas Skylights						Net Roof				
Building Component				Proposed UA			Target UA			
Cavity+CI		Plan/Detail #	U-factor Source & Table # ²	U-factor	x Area (A)	= UA (U x A)	U-factor	x Area (A) =	UA (U x A)	
Roofs	Deck	R= 35	Continuous insulation above roof deck	0.029	194944	5575.4	0.027	194944	5263.5	
		R=					Above Deck Insulation U-0.027			
		R=								
	Mtl Bld	R=						0.031		
		R=						Metal Building U-0.031		
		R=								
	Joist/Rft	R=						0.027		
		R=						Joist/single rafter U-0.027		
		R=								
Attic/Oth	R=						0.021			
	R=						Single raft, attic, other U-0.021			
	R=									
Walls - Above Grade ^{4,6}	Steel	R=					NR		NR	
		R=					Steel/metal frame NR			
		R=								
	Mtl Bld.	R=						NR	NR	
		R=						Metal Building NR		
		R=								
	Wood/Oth	R=						NR	NR	
		R=						Wood Frame, other NR		
		R=								
Mass ³	R=		Tilt-up concrete wall panels	1.490	59429	NR	NR	59429	NR	
	R=						Mass Wall NR			
	R=									
Transfer ⁴	R=						NR	NR		
	R=						Mass Transfer Deck NR			
	R=									
Group R	R=						NR	NR		
	R=						Group R Mass Wall NR			
	R=									
Below Grade Walls ^{4,6}	Comm	R=					NR	NR		
		R=					Assumed to be Mass Wall NR			
		R=								
Group R	R=						NR	NR		
	R=						Assumed to be Mass Wall NR			
	R=									
Floors	Mass	R=					0.031			
		R=					Mass Floor U-0.031			
		R=								
	Framed	R=						0.029		
R=							Joist/Framing U-0.029			

	Area ¹	UA	Area ¹	UA
Page 1 Subtotal	254373	5575	254373	5263

Component Performance Compliance (UA)

UA COMPLIES

Component Performance Path, pg. 2

ENV-UA

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Revised Oct 2017

Project Title: Puyallup Corporate Park						Date: 04/03/2020				
Fenestration Area as % gross above-grade wall area						8.0% Max. Target: 30.0%				
Skylight Area as % gross roof area						0.9% Max. Target: 5.0%				
Building Component				Proposed UA			Target UA			
Ins. R		Plan/Detail #	F-factor Source & Table # ⁸	F-factor	x Perimeter	= FP(F x P)	F-factor	x Perimeter	= UA (U x A)	
Slab-on-grade	Unheated	R=	No insulation	0.730	1998	1458.2	0.540	1998	1078.7	
		R=					Slab-On-Grade F-0.54			
		R=								
	Heated	R=						0.550		
		R=	Heated Slab-On-Grade F-0.55							
		R=								
Schedule ID			U-factor Source ^{9,10}	U-factor	x Area (A)	= UA (U x A)	U-factor	x Area (A)	= UA (U x A)	
Doors ^{6,9}	Swingin		3'x7' man doors	0.370	525	194.3	0.370	525	194.3	
		Opaque Swing Doors U-0.37								
	Other		9'x10' roll-up doors	0.057	2880	164.2	0.340	3216	1093.4	
		12'x14' roll-up doors			0.057	336	19.2	Opaque rollup & sliding U-0.34		
Vertical Fenestration ^{6,10}	Non-Metal						0.30			
		Non-Metal Frame U-0.30								
	Metal, fixed		NFRC rated assembly	0.38	5431	2064.0	0.38	5431	2064.0	
		Metal Frame, Fixed U-0.38								
	Metal, op.						0.40			
		Metal Frame, Operable U-0.40								
Mtl entrance		NFRC rated assembly	0.60	63	37.8	0.60	63	37.8		
Metal Entrance Door U-0.60										
Skylights ¹⁰	All Types		NFRC rated assembly	0.5	1856	928.0	0.50	1856	928.0	
		All types U-0.50								
Refrigerated Space Freezer Floors				Proposed UA			Target UA			
CI		Plan/Detail #	U-factor Source & Table # ²	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 ¹	UA	Area ¹	UA
Page 2 Subtotal	13089	4865	13089	5396
Page 1 Subtotal	254373	5575	254373	5263
Project Total	267462	10441	267462	10660

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

Component Performance Compliance (UA) UA COMPLIES

Refrigerated Space Windows In Doors ^{11,12}								
	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** - Proposed CMU mass wall in non-Group R that meet Table C402.1.4 Footnote D requirements can enter the target U-value of 0.104.
- 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** - List Group R above grade mass walls here. List all other above grade walls, Commercial and Group R, in the Opaque Walls - Above Grade section.
- Note 8** - Slab-on-grade F-Factors shall come from Appendix A or calculated per approved method as specified in C402.1.5.1.
- Note 9** - 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 10** - 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 11** - 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 12** - 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 13** - 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 14** - Addition + Existing, Alteration + Existing, Addition + 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.