PRNCNC20231424

PRNCNC20231424

LIGHTING COMPLIANCE SUMMARY

2018 WSEC Compliance Forms for Commercial Buildings including Group R2, R3 & R4 over 3 stories and all R1 — Administered by: 02023 NEEA, All rights reserved

Project & Applicant Information	Project Title	ARCO Puyallup - 2018 WSEC	For Building Department Use:	Date:	Nov 03, 2023
	Project Address	Martin Way E Puyallup, WA 98516			
	Applicant Name	Steven Cruz			
	Applicant Phone	206-327-1594			
	Applicant Email	Steven_Cruz@abossein.com			

For questions about this report, contact WSEC Commercial Technical Support at 360-539-5300 or via email at com.techsupport@wsenergycodes.com

Control Occupancy	All Commercial		General Building Use Type		Retail, Convenience/Fuel Dispensing	Building Cond. Floor Area	3,489
General Project Types	New Building	New Building or Addition	Interior Lighting Exterior Lighting	Alteration Lighting Scope		Floors Cond. Floor Area	3,489
		Lighting Scope				Floors Above Grade	1
						Compliance Method	Compliance Method 1 - General
Lighting Project Description							

Lighting Compliance Scope and Method	Project Type	Interior / Exterior (exterior includes both interior & porting)	Luminaire Replacement Scope	Compliance Method	LPA Calculation Adjustment	Compliance Verification
	New Building	Interior Lighting		Building area	No Calculated Adjustments selected	COMPLIES
	New Building	Exterior Lighting			Not applicable to exterior	COMPLIES

Project Title	ARCO Puyallup - 2018 WSEC	Date	Nov 03, 2023
Lighting Power Calculation	NEW BUILDING - INTERIOR LIGHTING	Compliance Verification	COMPLIES

Compliance Method	Building area	LPA Calculation Adjustment	LPA x 0.8

Interior Lighting Power Allowance - Building Area

Building Areas	Gross Interior Area (SF)	LPA (Watts/SF)	Total Watts Allowed (SF x LPA x 0.8)	Total Proposed Watts By Building Area	Compliance Status by Building Area
Retail	3,489	0.84	2,345	2,169	COMPLIES

Proposed Lighting Power Density

Fixture Type/Application	Fixture ID	Building Area	New or Existing-to-Remain	Quantity of Fixtures, CLDs or Luminaires (#F)	Watts per Fixture, CLD or Luminaire (Wpf)	Total Linear Feet (LF)	Watts per Linear Foot (Wp/LF)	Total Watts Proposed (#F x Wpf) or (LF x Wp/LF)
Individual Fixtures								
Recessed downlight	A/AR	Retail	New	15	30			350
Recessed downlight	R	Retail	New	22	14			448
Suspended	B/BE	Retail	New	31	23			707
Other fixture type	S3	Retail	New	2	32			63
Other fixture type	D	Retail	New	7	32			221

Project Title	ARCO Puyallup - 2018 WSEC	Date	Nov 03, 2023
Proposed Fixtures Details	NEW BUILDING - INTERIOR LIGHTING		

Fixture Type/Application	Fixture ID	Location in Documents	Lamp Type	Building Area	New or Existing-to-Remain
Individual Fixtures					
Recessed downlight	A/AR	E1.0	LED	Retail	New
	Fixture Description: 2x2 Recessed LED Troffer			Are these fixtures located within a daylight zone?: No	

Recessed downlight	B	E1.0	LED	Retail	New
	Fixture Description: 6" Recessed Downlight			Are these fixtures located within a daylight zone?: Yes, zonal is provided	
	Daylight zone location(s): Sidelit daylight areas (primary and/or secondary)			Dimming method: Continuous dimming	
	On these fixtures require specific application lighting controls? None required				
Suspended	B/BE	E1.0	LED	Retail	New
	Fixture Description: 4' LED Suspended			Are these Fixtures located within a daylight zone?: Yes, zonal is provided	
	Daylight zone location(s): Sidelit daylight areas (primary and/or secondary)			Dimming method: Continuous dimming	
	On these fixtures require specific application lighting controls? None required				
Other fixture type	S3	E0.1.0	LED	Retail	New
	Fixture Description: LED Strip Light			Are these Fixtures located within a daylight zone?: No	
	On these fixtures require specific application lighting controls? None required				
Other fixture type	D	E1.0	LED	Retail	New
	Fixture Description: Bathgroom Light			Are these Fixtures located within a daylight zone?: No	
	On these fixtures require specific application lighting controls? None required				

Project Title	ARCO Puyallup - 2018 WSEC	Date	Nov 03, 2023
Lighting Power Calculation	NEW BUILDING - EXTERIOR LIGHTING	Compliance Verification	COMPLIES
Exterior Lighting Zone	ZONE 2	Base Site Allowance	450

Exterior Tradable Lighting Power Allowance

Tradable Surfaces	Tradable Surface Sub-Type	Surface Area (SF)	LPA (Watts/SF)	Linear Feet (LF)	LPA (Watts/LF)	Total Watts Allowed (LPA x SF) or (LPA x LF)	Total Tradable Proposed Watts	Tradable Compliance Status
Building entrances and exits	Entry canopies	211	0.25			53		
Outdoor sales	Sales canopies - Free standing	7,585	0.40			3,034		
Unsecured parking areas and drives		63,314	0.04			2,533		
					Base Site Allowance	450		
					Totals:	6,019	2,493	COMPLIES

Proposed Tradable Lighting Power Density

Fixture Type	Fixture ID	Tradable Surface Type	Quantity of Fixtures (#F)	Watts or Wattage Limit per Fixture (Twpf)	Total Linear Feet (LF)	Watts per Linear Foot (Wp/LF)	Total Watts Proposed (#F x Wpf) or (LF x Wp/LF)
Individual Fixtures							
Canopy	G3	Building entrances and exits - Entry canopies	2	35			70
Canopy	G	Building entrances and exits - Entry canopies	3	70			209
Canopy	B1	Outdoor sales - Sales canopies - Free standing	18	103			1,836
Pole-mounted	S2	Unsecured parking areas and drives -	6	63			378
						Tradable Proposed Total:	2,493

Remaining Base Site Allowance Watts	600

Exterior Non-Tradable Lighting Power Allowance

Non-Tradable Surfaces	Non-Tradable Surfaces Sub-Type	Surface Area (SF)	LPA (Watts/SF)	# of Items	LPA (Watts per # of items)	Total Watts Allowed (LPA x SF) or (LPA x # of Items)	Total Non-Tradable Proposed Watts by Surface Type	Non-Tradable Proposed Watts Exceeding LPA	Non-Tradable Compliance Status
Building façade		3,062	0.075			230	423	193	
						Total Proposed Watts Exceeding LPA:		193	
						Remaining Base Site Allowance:		207	COMPLIES

Proposed Non-Tradable Lighting Power Density

Fixture Type	Fixture ID	Tradable Surface Type	Quantity of Fixtures (#F)	Watts or Wattage Limit per Fixture (Wpf)	Total Linear Feet (LF)	Watts per Linear Foot (Wp/LF)	Total Watts Proposed (#F x Wpf) or (LF x Wp/LF)
Individual Fixtures							
Facade	F	Building façade -	9	47			423

Project Title	ARCO Puyallup - 2018 WSEC	Date	Nov 03, 2023
Proposed Fixtures Details	NEW BUILDING - EXTERIOR LIGHTING		

Fixture Type	Fixture ID	Location in Documents	Lamp Type	Tradable Surface Type	New or Existing-to-Remain
Individual Fixtures					
Canopy	G2	E1.0	LED	Building entrances and exits - Entry canopies	New
	Fixture Description: LED Canopy Light			On these fixtures require specific exterior lighting controls?: Building façade & landscape, closing time off controls	
Canopy	G	E1.0	LED	Building entrances and exits - Entry canopies	New
	Fixture Description: LED Canopy Light			On these fixtures require specific exterior lighting controls?: Building façade & landscape, closing time off controls	
Canopy	B1	E0.1.1, E0.1.2	LED	Outdoor sales - Sales canopies - Free standing	New
	Fixture Description: LED Canopy Light			On these fixtures require specific exterior lighting controls?: Daylight sensing off controls	
Pole-mounted	S2	E0.1.0	LED	Unsecured parking areas and drives -	New
	Fixture Description: LED Pole Mounted Light			On these fixtures require specific exterior lighting controls?: Daylight sensing off controls	

Fixture Type	Fixture ID	Location in Documents	Lamp Type	Non-Tradable Surface Type	New or Existing-to-Remain
Individual Fixtures					
Facade	F	E1.0	LED	Building façade -	New
	On these fixtures require specific exterior lighting controls?: Daylight sensing off controls				

Lighting, Motor and Electrical Requirements List, pg 1 of 10

The following information is necessary to check a permit application for compliance with the lighting systems, motors and electrical system requirements in the Washington State Energy Code, Commercial Provisions.
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Project:
ARCO Puyallup - 2018 WSEC
Martin Way E
Puyallup, WA 98516

Date: 2023-11-03

Applies	Code Section	Component	Compliance Information Required In Permit Documentation	Location In Documents	Building Department Notes
LIGHTING SCOPE					
NA	C103.1	Construction documents - General	For a shell & core or tenant space (first build-out) project, indicate if there is no lighting scope included in the project.		
NA	C103.1	Construction documents - General	For an alteration project, indicate if there is no lighting scope included in the project.		
LIGHTING CONTROLS					
YES	C405.2	Lighting controls, general	For all lighting fixtures, indicate lighting control method on plans for spaces and lighting zone(s) served, or exception taken	E1.0	
NA	C405.2, Option 2	Luminaire level lighting controls (LLLC)	Indicate on plans all fixtures provided with LLLC in lieu of C405.2 lighting controls; provide description of control capabilities and performance parameters		
NA	C405.2.5, Item 3 C405.2.1.1 C405.2.3.1	Lighting in dwelling units (dormitory, hotel and all other than multifamily)	Indicate method of automatic control of all installed luminaires in dwelling units in buildings other than multifamily (occupancy or light reduction controls)		
NA	C405.2.5, Item 2	Lighting in sleeping units	Indicate method of automatic off control of all installed luminaires in sleeping units (vacancy or key card control); also refer to Receptacles		
YES	C405.2.3 C405.2.3.1 C405.2.5	Manual controls	Indicate on plans the method of manual lighting control, location of manual control device and the area or specific application it serves	E1.0	
YES	C405.2.3.1 C405.2.1.1 C405.2.4	Manual interior light reduction controls	Indicate on plans which method of manual 50% lighting load reduction is provided, or indicate applicable exception	E1.0	
YES	C405.2.1 C405.2.2.1 C405.2.1, Exception 3	Method of automatic shut-off control	Indicate on plans the method of automatic shut-off control during unoccupied periods (occupancy sensor, time switch or digital timer switch) for all lighting zones	E1.0	
YES	C405.2.1	Occupant sensor controls	Indicate on plans all luminaires that are controlled by occupant sensor controls; indicate controls are configured to turn luminaires 100% off when the space is unoccupied	E1.0	
YES	C405.2.1 C405.2.1.1	Occupant sensor controls	Indicate if occupant sensor controls are configured to be manual on or automatic on to not more than 50% power; indicate spaces eligible for exception that allows automatic on to 100% power	E1.0	

Lighting, Motor and Electrical Requirements List, pg 2 of 10

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NA	C405.2.1.2	Occupant sensor controls - warehouses spaces	Indicate each aisleway and corridor within a warehouse space are designated as seperate zones that are independently controlled		
NA			Indicate occupant sensors are configured to automatically reduce lighting power by 50% when the zone is unoccupied and 100% off after the zone is unoccupied for over 20 minutes; indicate controls are configured to automatically restore lighting to full power when the zone or space is occupied.		
NA	C405.2.1.3	Occupant sensor controls - open plan office areas	For open plan office areas larger than 300 sf, indicate general lighting is provided with vacancy controls that reduce lighting power by not less than 50% and are configured to turn luminaires 100% off when the space is unoccupied; indicate that no individual control zone area exceeds 600 sf		
NA	C405.2.1.4	Occupant sensor controls - parking garages	Indicate parking garage general lighting is provided with vacancy controls that reduce lighting power by not less than 30% and are configured to turn luminaires 100% off when no vehicles or pedestrians are present, unless eligible for an exception; indicate that no individual control zone area exceeds 3,600 sf		
NA	C405.2.1.5	Occupant sensor controls - enclosed fire-rated stairwells	Indicate stairway lighting is provided with vacancy controls that reduce lighting power by not less than 50% when the stairway is unoccupied		
NA	C405.2.2.1	Automatic time switch controls	Indicate spaces on plans where time switch controls turn luminaires 100% off during unoccupied hours		
NA			Indicate spaces on plans where time switch controls are configured to turn on lighting to full power versus 50% power		
NA			Indicate locations of override switches on plans and the lighting zone(s) served; Indicate that the area(s) served by each override switch does not exceeds 5,000 sf		
NA	C405.2.1, Exception 3	Digital timer switch	Indicate digital timer switch control includes: manual on/off, time delay, audible and visual indication of impending time-out		
YES	C405.2.4.2 C405.2.4.3	Daylight zones - Sidelit and toplit	Indicate primary and secondary sidelit daylight zone floor areas on plans	E1.0	
NA			Indicate toplit daylight zone floor areas on plans		
NA			For small vertical fenestration assemblies (rough opening less than 10 percent of primary daylight zone floor area) where daylight responsive controls are not required, provide fenestration area to daylight zone floor area calculation(s)		

Lighting, Motor and Electrical Requirements List, pg 3 of 10

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YES	C405.2.4	Daylight responsive controls	Indicate on plans lighting zone(s) served by daylight responsive controls; indicate that the area served by each control device does not exceeds 2,500 sf	E1.0	
NA			Identify sidelit and toplit daylight zones that are not provided with daylight sensing controls and the exception(s) that apply		
YES	C405.2.4.1.1	Daylight responsive controls	Indicate on plans the lighting load reduction method (continuous dimming, or stepped dimming) that provides at least two even steps between 0%-100% of rated power)	E1.0	
YES	C405.2.4.1	Daylight responsive controls	Indicate that daylight sensing controls are configured to completely shut off all controlled lights in the lighting zone	E1.0	
NA	C405.2.5	Additional controls - Specific application lighting controls	Identify spaces and lighting fixtures on plans that require specific application lighting controls per this section		
NA	C405.2.5, Item 1	Display and accent lighting	Indicate on plans that manual controls are provided that control display, accent lighting and display case lighting independently from both general area lighting and other lighting applications within the same space		
NA			Indicate manual and automatic (occupant sensor or time switch) lighting control methods		
NA	C405.2.5, Item 3	Hotel/motel guest rooms	Indicate method of automatic control - vacancy or captive key control of all installed luminaires and switched receptacles in guest room		
NA	C405.2.5, Item 1	Supplemental task lighting	Indicate method and location of manual and automatic shut-off control (occupant sensor or time switch) for supplemental task lighting, including under-shelf or under-cabinet lighting		
NA	C405.2.5, Item 1	Lighting equipment for sale or demonstration	Indicate on plans that lighting equipment for sale or demonstration are controlled independently from both general area lighting and other lighting applications within the same space		
NA			Indicate manual and automatic (occupant sensor or time switch) lighting control methods		
NA	C405.2.5, Item 4	Lighting for non-visual applications	Identify all eligible non-visual lighting applications on plans; Indicate that the area served by each control device does not exceeds 4,000 sf		
NA			Indicate on plans that non-visual lighting are controlled independently from both general area lighting and other lighting applications within the same space		

Lighting, Motor and Electrical Requirements List, pg 4 of 10

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NA			Indicate method of manual lighting control and applicable automatic lighting control		
YES	C405.2.5, Item 5	Means of egress lighting	Identify on plans egress fixtures that function as both normal and emergency means of egress illumination	E1.0	
YES			Provide calculation of lighting power density of total egress lighting	E1.0	
NA			If total egress lighting power density is greater than 0.02 W/sq. ft., indicate on plans egress fixtures requiring automatic shut-off during unoccupied periods		
YES			Indicate method of automatic shut-off control	E1.0	
NA	C405.4.1 C405.4.2	Lighting control of exempt interior lighting	Indicate that exempt interior lighting equipment and lighting located within spaces that are eligible for a lighting power exemption are controlled independently from non-exempt and general area lighting		
NA	C405.2.6	Exterior lighting controls	For decorative exterior lighting, indicate on plans automatic daylight shut-off controls, or exception taken		
YES			For exterior lighting that is not decorative, indicate on plans automatic daylight or time-switch shut-off controls and setback controls; or indicate exception taken	E1.0,E0.1.0,E0.1.1	
YES			For lighting requiring setback controls, indicate control sequence that reduces lighting power by at least 30% between 12am-6am, or from 1 hour after closing to 1 hour before opening, or based upon motion sensor	E1.0,E0.1.0,E0.1.1	
YES			For building facade and landscape lighting, indicate control sequence for shut-off control is based on dawn-to-dusk and business operating/closing schedule; Indicate whether automatic or time switch controls will be provided for this function	E1.0,E0.1.0,E0.1.1	
NA	C405.5.3	Lighting control of exempt exterior lighting	Indicate that exempt exterior lighting and lighting located within exterior areas/surfaces that eligible for a lighting power exemption are controlled independently from non-exempt exterior lighting		
NA	C405.5.4	Exterior gas-fired lighting appliances	Indicate ignition system is a method other than continuously burning pilot light		
NA	C405.2.7	Area controls - Master control switches and circuit power limit	Indicate location(s) of master control switch(es) intended to control multiple independent switches; circuit breaker may not be used as a master control switch		
NA			Verify that no 20 amp circuit controlled by a single switch or automatic control is loaded beyond 80%		
ADDITIONAL EFFICIENCY CREDIT - ENHANCED INTERIOR LIGHTING CONTROLS					

FULL SIZED LEDGIBLE **COLOR** PLANS ARE REQUIRED TO BE PROVIDED BY THE PERMITTEE ON SITE FOR ALL INSPECTIONS
(MIN. PLAN SIZE 24" X 36")

City of Puyallup
Building
ACCEPTED
JMontgomery
01/26/2024
1:29:02 PM
CITY OF PUYALLUP
STATE OF WASHINGTON

ABOSSEIN #223054
Abossein Engineering, L.L.C.
MECHANICAL – ELECTRICAL
CIVIL – LEED
FIRE PROTECTION
18465 NE 68TH ST
REDMOND, WA 98052
PH: (425) 462-9441
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E-Mail: cservice@abossein.com
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CLIENT:
bp
ARCO
BP WEST COAST PRODUCTS, LLC

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

NO.	DATE	REVISION DESCRIPTION
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11		
12		

SEAL:
ALEXANDER J. ABOSSEIN
STATE OF WASHINGTON
21891
REGISTERED
PROFESSIONAL ENGINEER

DEVELOPMENT INFORMATION:
ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:
SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #7184

DESIGNED BY:	ALLIANCE ZADM:
CHECKED BY:	BP REPM:
DRAWN BY:	ALLIANCE PM:
VERSION: - -	PROJECT NO: 21730

DRAWING TITLE:
ENERGY CODE FORMS

SHEET NO:
E5.0

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Lighting, Motor and Electrical Requirements List, pg 5 of 10

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NA	C406.4	Enhanced digital lighting controls	To comply with additional efficiency credit, indicate on plans that interior lighting fixtures are configured with all of the following control functions, as applicable: 1) Each fixture is individually addressed, or exception taken: 2) Fixtures are configured for continuous dimming; 3) No more than eight fixtures are controlled by a single daylight sensor; 4) In enclosed and open office areas, illumination levels of overhead general area lighting is configured to be individually adjusted by occupants	
NA			Include calculations that demonstrate the total lighting power of all interior lighting fixtures configured with enhanced lighting controls is no less than 90% of the total interior lighting power for the area the enhanced lighting controls credit is being applied to	
INTERIOR LIGHTING POWER & EFFICACY				
YES	C405.4.1 C405.4.2	Total connected interior lighting power	Include all luminaires in interior lighting fixture schedule; indicate fixture types, lamps, ballasts, and manufacturer's watts per fixture for the installed lamp	E1.1
YES			Identify spaces eligible for lighting power exemption on plans and in WSEC interior lighting compliance reports; indicate the exception applied	E5.0, E5.1
NA			Identify lighting equipment eligible for lighting power exemption in fixture schedule and in WSEC interior lighting compliance reports; indicate the exception applied	
NA	C405.1 C405.1.1	Lighting in dwelling units (multifamily)	For all installed luminaires, include lamp type and number of lamps in lighting fixture schedule; for lamps that are not LED, T-8 or small diameter fluorescent, indicate efficacy of other lamp types is 65 lumens per watt or greater	
NA			For all installed luminaires, indicate in lighting fixture schedule whether complying via lighting power density or by qualifying lamp type; if by lamp type, include number of lamps	
NA			For all installed luminaires, indicate in lighting fixture schedule whether complying via lighting power density or by qualifying lamp type; if by lamp type, include number of lamps	
INTERIOR LIGHTING POWER CALCULATION - INDICATE COMPLIANCE PATH TAKEN				
YES	C405.4.2.1	Building Area Method	Demonstrate that total proposed wattage per building area does not exceed maximum allowed wattage per building area; identify locations of building areas on plans; provide WSEC exterior lighting compliance reports	E5.0,E5.1

Lighting, Motor and Electrical Requirements List, pg 6 of 10

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NA	C405.4.2.2	Space-By-Space Method	Demonstrate that total proposed wattage does not exceed maximum allowed wattage; identify locations of space types on plans, including retail display areas and areas with display, highlight and decorative lighting; provide WSEC exterior lighting compliance reports	
ADDITIONAL EFFICIENCY CREDITS - REDUCED INTERIOR LIGHTING POWER DENSITY				
YES	C405.3.1 C405.3.2	Reduced interior lighting power density	To comply with additional efficiency credit, demonstrate that total connected interior lighting wattage is 10% or 20% less than the total maximum allowed lighting wattage for the area the reduced lighting power credit is being applied to; indicate whether lighting power allowance is based on the building area method or space-by-space method; provide WSEC exterior lighting compliance reports	E5.0,E5.1
NA	C406.3	Reduced interior lighting power density - dwelling unit lamp efficacy	For project with dwelling units, to comply with additional efficiency credit indicate in lighting fixture schedule that lamps within installed interior luminaires have an efficacy rating of at least 65 lumens per watt; include number of lamps and provide calculations that demonstrate at least 95% of lamps have this efficacy rating	
EXTERIOR LIGHTING POWER & EFFICACY				
YES	C405.5.2	Total connected exterior lighting power	Include all luminaires in exterior lighting fixture schedule; indicate fixture types, lamps, ballasts, and manufacturer's watts per fixture for the installed lamp	E1.0,ES1.0,ES1.1
NA			Identify exterior applications eligible for lighting power exemption on plans and in WSEC exterior lighting compliance reports; indicate exception applied	
YES	C405.5.3(1)	Exterior lighting zone	Indicate building exterior lighting zone as specified by the AHJ	E5.0,E5.1
YES	C405.5.1	Exterior building grounds lighting	For building grounds fixtures rated at greater than 50 watts, Indicate rated lamp efficacy (in lumens per watt) in fixture schedule	E1.0,ES1.0,ES1.1
EXTERIOR LIGHTING POWER CALCULATION				
YES	C405.5.3	Tradable allowances	Demonstrate that total proposed tradable surface wattage does not exceed maximum allowed tradable surface wattage (including base site allowance); identify locations of tradable surfaces on plans; provide WSEC exterior lighting compliance reports	E5.0,E5.1

Lighting, Motor and Electrical Requirements List, pg 7 of 10

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YES			Demonstrate that proposed wattage per non-tradable surface type does not exceed maximum allowed wattage per non-tradable surface type (including base site allowance remaining after tradable allowance calculation); identify locations of non-tradable surfaces on plans; provide WSEC exterior lighting compliance reports	E5.0,E5.1
LIGHTING ALTERATIONS				
NA	C503.6.1	Interior and parking garage lighting fixture alterations	Where ≥ 50% of existing luminaires in an interior space or parking garage are replaced; indicate compliance path (building area or space-by-space method); include all new and existing-to-remain luminaires in WSEC interior lighting compliance reports; indicate proposed lighting wattage does not exceed maximum allowed per compliance path	
NA			Where < 50% of existing luminaires in an interior space or parking garage are replaced; indicate total existing lighting wattage in each space prior to alterations; include all new and existing-to-remain luminaires in WSEC interior lighting compliance reports; indicate proposed total lighting wattage in alteration area does not exceed total existing lighting wattage prior to alteration	
NA			Where ≥ 50% of existing exterior lighting wattage is replaced; include all new and existing-to-remain luminaires in WSEC exterior lighting compliance reports; indicate proposed total exterior lighting wattage does not exceed maximum allowed	
NA			Where < 50% of existing exterior lighting wattage is replaced; indicate total existing lighting wattage prior to alteration; include all new and existing-to-remain luminaires in WSEC interior exterior compliance reports; indicate proposed total exterior lighting wattage does not exceed total existing wattage prior to alteration	
NA	C503.6.2	Interior lighting wiring and circuiting alterations	Where new wiring is installed to serve new interior luminaires and /or luminaires are relocated to a new circuit; indicate manual and automatic lighting controls are provided (as applicable) - manual (C405.2.3); occupancy sensor (C405.2.1); light reduction (C405.2.2); daylight responsive (C405.2.4); specific application (C405.2.5)	
NA			Where new wiring is installed to serve new exterior luminaires and /or luminaires are relocated to a new circuit; indicate automatic lighting controls are provided (C405.2.6)	

Lighting, Motor and Electrical Requirements List, pg 8 of 10

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NA	C503.6.3	Lighting panel alterations	Where a new interior and/or exterior lighting panel is installed or an existing panel is moved (all new raceway and conductor wiring), indicate all applicable lighting controls requirements apply	
NA	C503.6.4	Newly-created rooms	Where interior space(s) is reconfigured (permanently installed walls or ceiling-height partitions) to create new enclosed spaces, indicate all applicable lighting controls requirements apply	
NA	C504.2	Lighting repairs	Identify existing luminaires being upgraded with bulb and / or ballast replacement; indicate fixture alteration does not increase existing fixture wattage	
NA	C505.1	Change of interior space use	Identify spaces on plans where the building area type or space use type is being changed from one type to another per Tables C405.4.2(1) or (2)	
NA			Indicate compliance method (building area or space-by-space); include all new and existing-to-remain luminaires in WSEC interior lighting compliance reports; indicate proposed lighting wattage does not exceed maximum allowed per compliance path	
RECEPTACLES				
YES	C405.10	Controlled receptacles	Identify all controlled and uncontrolled receptacles on electrical plans in each space in which they are required; include receptacle configuration such as spacing between controlled and uncontrolled, duplex devices, etc	E1.2
YES			Provide schedule that lists the number of controlled and uncontrolled receptacles in each space where controlled receptacles are required - classrooms, private offices, open office areas, conference rooms, copy rooms, break rooms and modular partitions/workstations	E1.2
YES			Indicate on plans the method of automatic control for each controlled receptacle zone (occupant sensor or programmable time-of-day control); Indicate that each zone served by a single controller does not exceed 5,000 sf	E1.2
NA	C405.2.5, Item 2	Switched receptacles in sleeping units	Indicate method of automatic off control of all switched receptacles in sleeping units (vacancy or key card control)	
NA	C503.6.6	Electrical receptacle alterations	Where new receptacles are added or replaced within an alteration project that is 5,000 sf or larger, indicate receptacles are provided with automatic controls per C405.10, or exception taken	
MOTORS, TRANSFORMERS, ELECTRIC METERS, INTERIOR TRANSPORTATION				

Lighting, Motor and Electrical Requirements List, pg 9 of 10

The following information is necessary to check a permit application for compliance with the lighting systems, motors and electrical system requirements in the Washington State Energy Code, Commercial Provisions.
For questions about this report, contact WSEC Commercial Technical Support at 360-539-5300 or via email at com.techsupport@waenergycodes.com

NA	C405.6	Electrical transformers	Include electrical transformer schedule on electrical plans; indicate transformer type, size, efficiency, or exception taken	
YES	C405.11	Feeders and branch circuits	Provide documentation that demonstrates maximum voltage drop across feeders and branch circuits does not exceed 5%	E4.0
NA	C405.7	Dwelling unit electrical energy consumption	Indicate on electrical plans that each dwelling unit in Group R-2 has a separate electrical energy meter	
NA	C405.8	Electric motor efficiency	Include all motors, including fractional hp motors, in electric motor schedule on electrical plans; indicate motor type, horsepower, rpm, rated efficiency, or exception applied	
NA	C405.9.1	Elevator cabs	For luminaires in each elevator cab, provide calculations that demonstrate average efficacy is not less than 35 lumens per watt	
NA			For elevators that do not have an integral air conditioning system, indicate rated watts per cfm for elevator cab ventilation fans do not exceed 0.33 watts per cfm	
NA			Indicate automatic controls that de-energize lighting and ventilation fans when elevator is stopped and unoccupied for a period of 15 minutes or more	
NA	C405.9.2	Escalators and moving walks	Indicate escalators comply with ASME A17.1/CSA B44; automatic controls are configured to reduce operational speed to the minimum permitted when not in use	
NA	C405.9.3	Regenerative drive	Indicate all one-way down or reversible escalators are provided with a variable frequency regenerative drive	
DOCUMENTATION AND SYSTEM REQUIREMENTS TO SUPPORT COMMISSIONING (CX)				
NA	C408.4	Scope of electrical power and lighting systems commissioning	Indicate that all electrical systems (receptacles, transformers, motors, vertical and horizontal transportation) for which the WSEC requires control functions and / or configuration to perform specific functions are required to be commissioned	
NA			Where total building lighting load is > 20 kW, or where total lighting load of luminaires requiring daylight sensing and / or occupancy control > 10 kW, indicate that all automatic lighting control systems are required to be commissioned; or provide building lighting power calculation demonstrating eligibility for exception	
NA	C405.13 C408.1.1 C408.1.2 C408.1.4.2 C103.6.3	Commissioning requirements in construction documents	Indicate Cx requirements in plans and specifications for all applicable electrical and lighting control systems per C408	

Lighting, Motor and Electrical Requirements List, pg 10 of 10

The following information is necessary to check a permit application for compliance with the lighting systems, motors and electrical system requirements in the Washington State Energy Code, Commercial Provisions.
For questions about this report, contact WSEC Commercial Technical Support at 360-539-5300 or via email at com.techsupport@waenergycodes.com

NA	C408.1.2 C408.1.2.1 C408.1.4 C103.6.3	Commissioning requirements in construction documents	Include general summary of Cx plan per C408.1.2 including: 1) Narrative description of activities; 2) Responsibilities of the Cx team; 3) Schedule of activities including verification of project close out documentation per C103.6; 4) Conflict of interest plan (if required)	
NA	C408.1.2 C408.1.4 C103.6.3	Commissioning requirements in construction documents	Include in general summary that a Cx project report and Compliance Checklist (Figure C408.1.A.1) shall be completed by the Certified Cx Professional and provided to the owner prior to the final electrical inspection	
NA	C408.4.1	Functional performance testing criteria	Identify in plans and specifications the intended operation of all equipment and controls during all modes of operation, including interfacing between new and existing-to-remain systems	
PROJECT CLOSE OUT DOCUMENTATION				
NA	C103.6.3	Project close out documentation requirements	Indicate in plans that project close out documentation is required including WSEC lighting compliance reports that document all interior and exterior lighting area and / or surface types, lighting power allowances and installed densities	
If "no" is selected for any question, provide explanation.				

ABOSSEIN #223054

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MECHANICAL - ELECTRICAL
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18465 NE 68TH ST
REDMOND, WA 98052
PH: (425) 462-9441
FAX: (425) 462-9451
E-Mail: cservice@abossein.com
www.abossein.com

CLIENT:

bp

ARCO

BP WEST COAST PRODUCTS, LLC

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

NO.	DATE	REVISION DESCRIPTION
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

SEAL:

ALEXANDER J. ABOSSEIN
STATE OF WASHINGTON
21897
REGISTERED
PROFESSIONAL ENGINEER

DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #7184

DESIGNED BY:	ALLIANCE ZACM:
CHECKED BY:	BP REPM:
DRAWN BY:	ALLIANCE PM:
VERSION: - -	PROJECT NO: 21730

DRAWING TITLE:

ENERGY CODE FORMS

SHEET NO:

E5.1

PRCNC20231424

PRCNC20231424

Chvac - Full Commercial HVAC Loads Calculation Program
Abossein Engineering LLC
Redmond, WA 98052

Elite Software Development, Inc.
Page 1

Building Summary Loads

Building peaks in July at 2pm.

Bldg Load Descriptions	Area Quan	Sen Loss	%Tot Loss	Lat Gain	Sen Gain	Net Gain	%Net Gain
Roof	3,771	7,184	7.50	0	2,103	2,103	1.69
Wall	3,877	15,564	16.24	0	6,492	6,492	5.23
Glass	482	11,806	12.32	0	19,221	19,221	15.49
Floor Slab	0	0	0.00	0	0	0	0.00
Skin Loads		34,554	36.06	0	27,816	27,816	22.42
Lighting	3,771	0	0.00	0	16,084	16,084	12.96
Equipment	9,600	0	0.00	200	40,946	41,146	33.16
Pool Latent	0	0	0.00	0	0	0	0.00
People	30	0	0.00	6,000	9,375	15,375	12.39
Partition	0	0	0.00	0	0	0	0.00
Cool. Pret.	0	0	0.00	0	0	0	0.00
Heat. Pret.	0	0	0.00	0	0	0	0.00
Cool. Vent.	650	0	0.00	5,804	8,457	14,261	11.49
Heat. Vent.	650	37,363	38.99	0	0	0	0.00
Cool. Infil.	330	0	0.00	2,866	5,465	8,330	6.71
Heat. Infil.	330	23,898	24.94	0	0	0	0.00
Draw-Thru Fan	0	0	0.00	0	1,072	1,072	0.86
Blow-Thru Fan	0	0	0.00	0	0	0	0.00
Reserve Cap.	0	0	0.00	0	0	0	0.00
Reheat Cap.	0	0	0.00	0	0	0	0.00
Supply Duct	0	0	0.00	0	0	0	0.00
Return Duct	0	0	0.00	0	0	0	0.00
Misc. Supply	0	0	0.00	0	0	0	0.00
Misc. Return	0	0	0.00	0	0	0	0.00
Building Totals		95,816	100.00	14,870	109,214	124,084	100.00

Building Summary	Sen Loss	%Tot Loss	Lat Gain	Sen Gain	Net Gain	%Net Gain
Ventilation	37,363	38.99	5,804	8,457	14,261	11.49
Infiltration	23,898	24.94	2,866	5,465	8,330	6.71
Pretreated Air	0	0.00	0	0	0	0.00
Room Loads	34,554	36.06	6,200	94,220	100,420	80.93
Plenum Loads	0	0.00	0	0	0	0.00
Fan/Duct/Misc Loads	0	0.00	0	1,072	1,072	0.86
Building Totals	95,816	100.00	14,870	109,214	124,084	100.00

Check Figures

Total Building Supply Air (based on a 21° TD):	4,539	CFM
Total Building Vent. Air (14.32% of Supply):	650	CFM
Total Conditioned Air Space:	3,771	Sq.ft
Supply Air Per Unit Area:	1.2038	CFM/Sq.ft
Area Per Cooling Capacity:	364.7	Sq.ft/Ton
Cooling Capacity Per Area:	0.0027	Tons/Sq.ft
Heating Capacity Per Area:	25.41	Btuh/Sq.ft
Total Heating Required With Outside Air:	95,816	Btuh
Total Cooling Required With Outside Air:	10.34	Tons

C:\...\ARCO_PUYALLUP WA_MAIN STORE.CH8 Monday, September 25, 2023, 04:17 PM

MECHANICAL COMPLIANCE SUMMARY

2018 WSEC Compliance Forms for Commercial Buildings including Group R2, R3 & R4 over 3 stories and all R1

Project & Applicant Information	Project Title	ARCO NTI - 2018 WSEC	For Building Department Use: Date: Sep 25, 2023
	Project Address	SWC S MERIDIAN @ HIGHWAY 512 PUYALLUP, WA 98371	
	Applicant Name	Gary Womack	
	Applicant Phone	426-462-9441	
	Applicant Email	gary_womack@abossein.com	

For questions about this report, contact WSEC Commercial Technical Support at 360-539-5300 or via email at com.techsupport@waenergycodes.com

General Occupancy	All Commercial		General Building Use Type	Retail, Convenience/Fuel Dispensing		Building Cond. Floor Area	3,771
General Project Types	New Building	New Building or Addition Mechanical Scope	Single Zone Systems & Equipment	Alteration Mechanical Scope		Project Cond. Floor Area	3,771
						Floors Above Grade	1
						Compliance Method	Compliance Method 1 - General
Mechanical Project Description	ROOFTOP PACKAGED HEAT PUMPS WITH DOAS						

Mechanical Compliance Scope and Method	Project Type	Mechanical Scope	Economizer Exception(s) Applied?	DOAS Ventilation Provided?	Higher Equipment Efficiency Option Applied?	Equipment Efficiency Compliance Verification
	New Building	Single Zone Systems & Equipment	Yes	Yes	NA	COMPLIES
Additional Efficiency Credits Included (AEC)						
Does building include occupancy classifications requiring DOAS?	Yes		Does project include DOAS equipment?			Yes
Based on project scope do TSPR requirements apply?	No		Do all systems comply with Appendix D standard reference design or qualify for an exception to TSPR?			No

Scope & Space Conditioning	NEW BUILDING - SINGLE ZONE SYSTEMS & EQUIPMENT	Compliance Verification	COMPLIES

Single Zone Air Systems Category - Heat pump, unitary, thru-wall, SDHV

Air Systems Summary Information

System/Equip ID	Quantity of Items	Supply Airflow Control	Ventilation Standard	Ventilation CFM (Total if Multiple Items)	Ventilation Air Source	Paired with DOAS	Ventilation energy recovery	Energy Recovery Efficiency (%)
RTU-2		Constant volume	IMC Ventilation	400	Separate DOAS	ERV-1	Yes per C403.7.6 Energy Recovery	77
RTU-1		Variable air volume	IMC Ventilation	400	Separate DOAS	ERV-1	Yes per C403.7.6 Energy Recovery	77

Air Systems & Equipment - Cooling

System/ Equip ID	Cooling System/Equip Type	Specific Type	Cooling Capacity per item (Btu/h)	AEC Efficiency Multiplier	Econo Exception Multiplier (FL & PL)	Combined Efficiency Multiplier (AEC & Econo)	Proposed Cooling Efficiency	CE Units	Proposed Part Load Efficiency	PL Units	Efficiency Compliance Verification
RTU-2	Heat pump, air cooled	Single package	84,500	1	0	1	11.9	EER	12.0	IEER	COMPLIES
RTU-1	Heat pump, air cooled	Single package	54,500	1	0	1	14.3	SEER		IEER	COMPLIES

Air Systems & Equipment - Heating

System /Equip ID	Heating System/Equip Type	Specific Type	Heat Pump Heating Capacity (Btu/h)	Cooling Capacity (Btu/h)	AEC Efficiency Multiplier	Proposed Heat Pump Heating Efficiency	HPH Units	Proposed Low OSA Temp Efficiency	LTH Units	Efficiency Compliance Verification
RTU-2	Heat pump, air cooled, heating	Single package	86,000	84,500	1	12.0	COP	2.3	COP	COMPLIES
RTU-1	Heat pump, air cooled, heating	Single package	57,800	54,500	1	8.2	HSPF		COP	COMPLIES

Air Systems & Equipment Details

System/Equip ID	Area(s) Served	Location In Project Documents - Plan/Detail #	
RTU-2{{detail-2289}}	ALL SPACES{{detail-2255}}	M1.0{{detail-2272}}	
	System/Equip ID for a single or multiple items?: Single item		
	Heating Section/Auxiliary Heating Type: Other source		Economizer Compliance Method: Air-side economizer provided
	WSEC Equip Efficiency Reference Table - Cooling: Table C403.3.2(2) - Unitary and Applied Heat Pumps		
	Proposed Low OSA Temp Efficiency: 2.3		LTH Units: COP
	WSEC Equip Efficiency Reference Table - Heating: Table C403.3.2(2) - Unitary and Applied Heat Pumps		
RTU-1{{detail-2289}}	ALL SPACES{{detail-2255}}	M1.0{{detail-2272}}	
	System/Equip ID for a single or multiple items?: Single item		
	Heating Section/Auxiliary Heating Type: Other source		Economizer Compliance Method: Air-side economizer provided
	WSEC Equip Efficiency Reference Table - Cooling: Table C403.3.2(2) - Unitary and Applied Heat Pumps		
	Proposed Low OSA Temp Efficiency:		LTH Units: COP
	WSEC Equip Efficiency Reference Table - Heating: Table C403.3.2(2) - Unitary and Applied Heat Pumps		

ABOSSEIN #223054

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bp

ARCO

BP WEST COAST PRODUCTS, LLC

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

NO.	DATE	REVISION DESCRIPTION

SEAL:

ALEXANDER ABOSSEIN
STATE OF WASHINGTON
REGISTERED PROFESSIONAL ENGINEER

DEVELOPMENT INFORMATION:

ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

SITE ADDRESS:

SWC S MERIDIAN
@ HIGHWAY 512
PUYALLUP, WASHINGTON

FACILITY #TBD

DESIGNED BY:	ALLIANCE Z&OM:
CHECKED BY:	BP REPM:
DRAWN BY:	ALLIANCE PM:
VERSION: -	PROJECT NO: 21730

DRAWING TITLE:

MECHANICAL ENERGY FORMS

SHEET NO:

M3.0

ENVELOPE COMPLIANCE SUMMARY

PRCNC20231424

2018 WSEC Compliance Forms for Commercial Buildings including Group R2, R3 & R4 over 3 stories and all R1

Project & Applicant Information	**Project Title**	ARCO Puyallup - 2018 WSEC	For Building Department Use:	**Date: Nov 03, 2023**
	Project Address	1402 South Meridian Puyallup, WA 98371		
	Applicant Name	Monika Uehlin		
	Applicant Phone	425-251-6222		
	Applicant Email	muehlin@barghausen.com		

For questions about this report, contact WSEC Commercial Technical Support at 360-539-5300 or via email at com.techsupport@waenergycodes.com

General Occupancy	All Commercial	**General Building Use Type(s)**	Retail, Convenience Store	**Building Cond. Floor Area**	3,349
Project Scope	New Building	**Space Conditioning Categories**	Fully Conditioned	**Project Cond. Floor Area**	3,349
				Floors Above Grade	1
				Compliance Method	Compliance Method 1 - General
Envelope Project Description	This project is a new ARCO ampm convenience store. Construction is type V-B, wood framed construction with supporting documentation consisting of permit drawings prepared for this project.				

Envelope Compliance Scope and Method	Scope	Space Conditioning Category	Compliance Method	WWR/SRR per Category	UA Calculation Adjustment	Fenestration Alternates	Compliance Verification
	New Building	Fully Conditioned	Component performance	19.22% / 0%	None selected	No alternates selected	**COMPLIES**

Air Barrier Testing	Air barrier testing included in project scope	**Air Barrier Comments**	

Project Title	**ARCO Puyallup - 2018 WSEC**	**Date**	**Nov 03, 2023**

Scope & Space Conditioning	**NEW BUILDING - FULLY CONDITIONED**			**Compliance Verification**	**COMPLIES**
Window-to-wall Ratio	19.22%	**Skylight-to-roof-ratio**	0%	**Vertical Fenestration Alternate**	No alternates selected

Opaque Envelope Assemblies

				Insulation R-Values				
Roof/Ceiling	**Location in Documents**	**Assembly ID**	**Assembly Location**	**Cavity**	**Continuous (% penetration)**	**2nd Layer (MB Roof)**	**U-Factor**	**Net Area (SF)**
Insulation entirely above deck	G1.6	RF-1	Exterior		R-38 (< 0.04%)		U-0.027	3,349
	U-Factor Source: Computed			U-Factor Source Description:				
	Is this assembly exterior or interior?: Exterior							
Walls	**Location in Documents**	**Assembly ID**	**Assembly Location**	**Cavity**	**Continuous (% penetration)**	**Insulated Wall Furring**	**U-Factor**	**Net Area (SF)**
Wood-framed and other - Commercial	G1.6	W-1	Exterior	R-21	R-0 (< 0.04%)		U-0.048	3,250
	Which insulation code target does wall comply with?: R-21 Cavity + Intermediate Framing			U-Factor Source: Computed				
	U-Factor Source Description:			Wall Framing Type (Standard, Inter., Advanced): Standard				
	Framing Depth: 2x6			Framing Spacing: 16				
	Is this assembly exterior or interior?: Exterior							
Slab-on-grade Floors	**Location in Documents**	**Assembly ID**	**Assembly Location**	**Slab Edge**	**Under Slab**		**F-Factor**	**Perimeter Length (SF)**
Unheated slab	G1.6	S-1	At grade level	R-10	R-0		F-0.54	252
	Slab Insulation Method: 2 ft vertical (from top of slab downward)			F-Factor Source: WSEC Appendix A				
	F-Factor Source Description:							

Fenestration & Opaque Door Assemblies

				Insulation R-Values				
Vertical Fenestration	**Location in Documents**	**Assembly ID**	**Assembly Location**	**Orientation**	**Shading (PF)**	**Fenestration SHGC**	**Fenestration U-Factor**	**Rough Opening (SF)**
Fixed - Class AW or site built	G1.6	F-1	Exterior	South/East/West Facing	PF < 0.2	SHGC-0.35	U-0.32	773

	U-Factor & SHGC Source: NFRC Rating	U-Factor Source Description:
	Is this assembly exterior or interior?: Exterior	

PRCNC20231424

Project Title	ARCO Puyallup - 2018 WSEC	Date	Nov 03, 2023

U x A Calculation	NEW BUILDING - FULLY CONDITIONED	COMPLIES

Opaque Envelope Assemblies		PROPOSED			TARGET		
Roof/Ceiling	**Assembly ID**	**Roof/Ceiling Assembly U-Factor**	**Net Area (SF)**	**U x A**	**Roof/Ceiling Assembly U-Factor**	**Net Area (SF)**	**U x A**
Insulation entirely above deck	RF-1	0.027	3,349.0	90.4	0.027	3,349.0 (1)	90.4
Walls	**Assembly ID**	**Wall Assembly U-factor**	**Net Area (SF)**	**U x A**	**Wall Assembly U-factor**	**Net Area (SF)**	**U x A**
Wood-framed and other - Commercial	W-1	0.048	3,249.5	156.0	0.054	3,249.5 (1)	175.5
Slab on Grade Floors		**PROPOSED**			**TARGET**		
Slab-on-grade Floors	**Assembly ID**	**F-Factor**	**Perimeter Length (LF)**	**U x A**	**F-Factor**	**Perimeter Length (LF)**	**U x A**
Unheated slab	S-1	0.54	252.0	136.1	0.54	252.0 (1)	136.1
Fenestration and Opaque Door Assemblies		**PROPOSED**			**TARGET**		
Vertical Fenestration	**Assembly ID**	**Fenestration Assembly U-Factor**	**Rough Opening (SF)**	**U x A**	**Fenestration Assembly U-Factor**	**Rough Opening (SF)**	**U x A**
Fixed - Class AW or site built	F-1	0.32	773.0	247.4	0.38	773.0 (1)	293.7

	Proposed Area	Proposed UxA	Target Area	Target UxA
Project Totals	**7,624**	**630**	**7,624**	**696**

PRCNC20231424

Project Title	ARCO Puyallup - 2018 WSEC	Date	Nov 03, 2023

SHGC x A Calculation	NEW BUILDING - FULLY CONDITIONED		COMPLIES					
Fenestration and Opaque Door Assemblies			PROPOSED			TARGET		
Vertical Fenestration - South/East/West Facing	Assembly ID	PF	Fenestration SHGC	Rough Opening (SF)	SHGC x A	Fenestration SHGC	Rough Opening (SF)	SHGC x A
Fixed - Class AW or site built	F-1	PF < 0.2	0.35	773.0	270.6	0.38	773.0 (1)	293.7

	Proposed Area	Proposed SHGC x A	Target Area	Target SHGC x A
Project Totals	773	271	773	294

PRCNC20231424

Building Envelope Requirements List, pg 1 of 9

The following information is necessary to check a building permit application for compliance with the building envelope requirements in the Washington State Energy Code, Commercial Provisions.

For questions about this report, contact WSEC Commercial Technical Support at 360-539-5300 or via email at com.techsupport@waenergycodes.com

Project:
ARCO Puyallup - 2018 WSEC
1402 South Meridian
Puyallup, WA 98371

PRCNC20231424

Date: 2023-11-03

Applies	Code Section	Component	Compliance Information Required In Permit Documentation	Location in Documents	Building Department Notes
SCOPE					
	C103.1	Construction documents - General	For a tenant space (first build-out) project, indicate if there is no envelope scope included in the project.		
	C103.1	Construction documents - General	For an alteration project, indicate if there is no envelope scope included in the project.		
	C402.1.1.1	Low energy spaces	Identify low energy spaces on plans; include calculations if applicable that demonstrate eligibility for envelope provisions exemption		
	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		
	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		
	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		
	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		
			Identify warehouse cooler and freezer spaces on plans		
	C101.4.1	Mixed residential & commercial building	Identify spaces with different occupancy requirements on plans		
	C503.2	Change of space conditioning alteration	Identify on plans existing unconditioned spaces changing to semi-heated or conditioned space, and existing semi-heated spaces changing to conditioned space; provide calculations for existing and final level of space conditioning		
	C505.1	Change of occupancy alteration	Identify on plans existing F, S and U-occupancy spaces undergoing a change in occupancy and final occupancy type		

			Group R spaces permitted before July 1, 2002 that are undergoing a change to a commercial occupancy shall be identified on plans	PRCNC20231424	
			Commercial (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 thermal performance compliance path (prescriptive or component performance) and provide WSEC envelope compliance reports	Component Performance, please see WSEC forms.	
YES			If complying via component performance, demonstrate that the Proposed Total UA is equal to or less than the Allowable Total UA	WSSEC Forms	
			If complying via total building performance, provide a list of all proposed envelope component types, areas and U-values		
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	G1.6	
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	G1.6	
YES	C303.1.1 C402.2.1	General insulation installation	Indicate installation methods, thicknesses, densities and clearances to achieve the intended R-value of all insulation materials	G1.6	
YES			Where two or more layers of rigid insulation will be used, indicate that edge joints between layers are staggered, or exception taken	G1.6	
YES	C103.2 C402.2.1	Roof assembly insulation	Indicate R-value(s) of cavity/continuous insulation on roof sections	G1.6	
YES			Indicate framing materials on roof sections	S1.3 AND A3.1-A3.3	
NA			Indicate method of framing for ceilings below vented attics and vaulted ceilings per A102.2 (std, adv)		
YES			Provide area weighted average U-factor calculation for insulation whose thickness varies by 1 inch or less	WSEC forms and G1.6	
YES			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	G1.6	
NA			Indicate R-values for thermal spacers and each insulation layer, and liner system (LS) method for metal building roofs		

	C402.2.1.1	Skylight curb insulation	Indicate skylight curb insulation R-value on roof section, if not included in skylight NFRC rating	PRCNC20231424	
YES	C402.2.1.2	Rooftop HVAC equipment curbs	Indicate rooftop HVAC equipment curb insulation R-value on roof section	G1.6	
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	G1.6	
YES			Indicate framing materials on wall sections	G1.8 AND A3.1-A3.3	
YES			Indicate method of framing for wood construction per A103.2 (std, int, adv)	G1.8 AND WSEC FORMS	
NA			Indicate material density category, wall weight and heat capacity for qualifying mass walls		
NA			For qualifying ASTM C90 masonry walls, indicate loose-fill core insulation material and percentage of cores filled including grouted cores, bond beams, vertical fills, headers and any other grouted cores		
NA			Indicate method of protection of exposed exterior basement/crawlspace wall insulation		
	C103.2 C402.4.4	Opaque doors	Indicate rated U-factor or R-value (non-swinging) on wall sections or in door schedules - applies to doors with less than 50% glazed area		
NA	C402.4.4	Garage doors	Indicate rated U-factor for sectional and tilt-up garage doors on wall sections or in door schedules - applies to garage doors with less than 14% glazed area; all other garage doors shall comply as opaque doors		
	C402.2.5	Floor over outdoor or unconditioned space insulation	Indicate R-value(s) of cavity/continuous insulation on floor sections		
			Indicate framing material on floor sections		
			Indicate material density category and weight of qualifying mass floors		
YES	C402.2.6 C303.2.1	Slab-on-grade floor insulation	Indicate R-value of continuous insulation on wall section or foundation detail	G1.6	
YES			Indicate insulation extends down vertically and/or horizontally the required distance from top of slab	G1.6	
YES			Indicate method of protection of exposed exterior slab edge insulation	G1.6	
NA			Indicate R-value of continuous insulation on wall section or foundation detail		
NA			Indicate insulation extends down vertically from top of slab and then horizontally under the entire slab		

NA			Indicate method of protection of exposed exterior slab edge insulation	PRCNC20231424	
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 heated slab-on-grade)		
YES	C402.4.1 C502.2.1	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	WSEC FORMS	
	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 that 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		
	C402.4.1.3 C502.2.1	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 area-weighted U-factor calculation		
	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		
	C402.4.1 C502.2.2	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		
	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	G1.6 AND WSEC FORMS	
NA			Indicate if an area-weighted U-factor is used for multiple fenestration elements within the same fenestration category per Table C402.4; provide area-weighted U-factor calculation		
YES			Indicate if values are NFRC or default; if default then specify frame type, glazing layers, gap width, low-e coatings, gas-fill	G1.6	
NA	C402.4.3	Permanent shading devices	For each group of windows with similar orientation and overhang or permanent projection geometry, provide projection factor calculations (Equation C4-6) for north and non-north orientations		
	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		
	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 CREDITS - ENHANCED ENVELOPE PERFORMANCE

PRCNC20231424

NA	C406.10	Enhanced envelope performance	To comply with additional efficiency credit, demonstrate envelope thermal performance compliance via component performance; provide WSEC envelope compliance reports that demonstrate Proposed Total UA is 15% lower than the Allowable Total UA	PRCNC20231424	
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	G1.6	
YES			Provide details for all joints, transitions in materials, penetrations in air barrier and note method of sealing (caulked, gasketed, or other approved method)	G1.6	
NA	C402.5.3 C402.1.3 C402.1.4	Rooms containing fuel burning space conditioning appliances	For room(s) located within the conditioned space that contain non-direct vent fuel-burning appliances that require outdoor air for combustion, indicate method of isolation from the conditioned space; include sealing of walls, floor and ceiling of room, doorway gasketting and sealing around ductwork and piping penetrations		
NA			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		
NA	C402.5.4	Doors and access openings to shafts, chutes, stairways and elevator lobbies	Indicate locations of all doors and access openings to shafts, chutes, stairways and elevator lobbies		
NA			Indicate method of sealing of these openings (gasketing, weatherstripping, other sealing method); or exception taken		
NA	C402.5.5 C403.7.8	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		
YES			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	G1.6	
NA	C402.5.8	Recessed lighting in building envelope	Indicate method of sealing between light fixture housing and wall or ceiling		
NA			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		
	C402.5.6	Loading dock seals	Indicate weather seal at cargo and loading dock doors		

	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	PRCNC20231424	
YES			Indicate locations of all building entrances and exit-only doors provided with an air curtain in lieu of a vestibule	Q1.1	
			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 C402.5.1.2C 402.5.1.2.1 R402.4.1.2	Building enclosure air leakage test	Indicate in project documents that building enclosure air leakage testing is required for WSEC compliance	G1.6	
NA			Provide area calculations that account for all six sides of the air barrier boundaries		
YES			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)	G1.6	
YES			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)	G1.6	
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; (3) If initial test result exceeds 0.40 cfm/ft2 (2.0 L/s*m2), indicate that corrective actions shall also include re-testing; (4) 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.	G1.6	
ADDITIONAL EFFICIENCY CREDITS - REDUCED AIR INFILTRATION					

The following information is necessary to check a building permit application for compliance with the building envelope requirements in the Washington State Energy Code, Commercial Provisions.
For questions about this report, contact WSEC Commercial Technical Support at 360-539-5300 or via email at com.techsupport@waenergycodes.com

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	PRCNC20231424	
ALTERATIONS					
	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		
	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		
	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		
	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		
NA	C103.2 C103.6.3 C503.2C 505.1	Change in space conditioning or occupancy compliance documentation	If complying via total building performance with 110% allowance, provide a list of all proposed envelope component types, areas and U-values		
PROJECT CLOSE OUT DOCUMENTATION					

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YES	C103.6.3	Project close out documentation requirements	Indicate in plans that project close out documentation is required including applicable calculations, WSEC envelope compliance reports, and fenestration NFRC rating certificates	G1.6	PRCNC20231424