

Project Information
East Town Crossing Unit 101 Building A Pioneer & Shaw, Puyallup
Contact Information
Synthesis 9, LLC Brett Lindsay blindsay@synthesis9.com 253-468-4117

Messages / Results *
City of Puyallup Development & Permitting Services ISSUED PERMIT Building Planning Engineering Public Works Fire Traffic UA Reduction = 2.39, Proposed UA is better than baseline by 1% Whole House Mechanical Ventilation Airflow Rate: 55 CFM with Run Time Percent of 100%, Balanced, Distributed * Results assume your inputs are complete and correct. Results do not constitute an approval. Analysis should be reviewed by your AHJ.

ANALYSIS SET UP

What code compliance pathway are you using?	Prescriptive Path Compliance with Option 1 (preferred)
Project Building Type?	New Construction
Occupancy Type?	R2 Multifamily
Code Version?	WSEC 2018
Classification:	Small Dwelling Unit -- 819 sq. ft.
Baseline Description:	Code Baseline - Baseline and proposed window areas are equal.
About Your Selection:	Up to 15 sf exempt window and 24 sf exempt door allowable

RESULTS - Comparison of Baseline and Proposed Design

Component Performance, R occupancies				Proposed Design			
	U	Area	UA	U	Area	UA	
Doors U =	0.300	40	12.0	0.300	40	12.0	
Overhead Glazing U =	0.500	0	0.0		0	0.0	
Vertical Glazing U =	0.300	111	33.3	0.300	111	33.3	
Flat/Vaulted Ceilings U =	0.027	0	0.0		0	0.0	
Wall (above grade) U =	0.056	1,196	67.0	0.054	1,196	64.6	
Floors over Crawlspace U =	0.029	0	0.0		0	0.0	
Slab on Grade F =	0.540	133	72.0	0.540	133	72.0	
Below Grade Wall U =	0.042	0	0.0		0	0.0	
Below Grade Slab F =	0.570	0	0.0		0	0.0	
Baseline UA Total			184.3	Proposed UA Total			181.9
Required Credits			4.5	Proposed Credits			5.5
				UA Percent Reduction			1.3%
				UA Reduction			2.4

If the Proposed UA ≤ the Target UA, and the Proposed Credits from Table 406 are ≥ those required in Section R406, then the home meets the WSEC.

Table R406.2 Fuel Normalization Credits

System No.	Full Description	Select System Type	Fuel Normalization Credits (406.2)	Energy Credits (406.3)	Total Credits (406.2 & 406.3)
2	For an initial heating system using a heat pump that meets federal standards for the equipment listed in Table C403.3.2(1)C or C403.3.2(2) OR Air to water heat pump units that are configured to provide both heating and cooling and are rated in accordance with AHRI 550/590. Heat pump with electric resistance or fossil-fuel supplemental heat requires compliance with WSEC 403.1.2 "Heat Pump Supplementary Heat". Packaged Terminal Heat Pumps (PTAC-HP) requires an HSPF tested value (See SBC Interpretation dated December 2020).	Heat Pump, air-to-air or air to water	1.0	4.5	5.5

Table R406.3 Energy Credits

Option No.	Category	Select Options	Energy Credits	Brief Description of Selected Options*
1	Efficient Building Envelope		0.0	
2	Air Leakage Control and Efficient Ventilation		0.0	
3	High Efficiency HVAC	Option 3.4	2.0	Ductless Split System, Zonal Control. Min HSPF of 10.
4	High Efficiency HVAC Distribution System		NA	
5.1	Efficient Water Heating		0.0	
5.2-5.6	Efficient Water Heating	Option 5.5	2.5	NEEA Tier 3 heat pump water heater
6	Renewable Electric Energy		0.0	
7	Appliance Package		0.0	
Energy Credits			4.5	

*Refer to WSEC 2018 Table R406.3 for complete option descriptions and requirements

THERMAL ENVELOPE DETAILS - Proposed Design

[illegible]

Overhead Glazing										
Plan ID	Component Description	Ref.	Glazing U	Qt.	Width		Height		Area	UA
					Feet	Inch	Feet	Inch		
									0	
									0	
									0	
									0	
									0	
									0	
Sum of Area and UA									0	0
Overhead Glazing Area Weighted U										

Vertical Glazing Schedule										Rows to Show	3
Plan ID	Component Description	Ref.	Glazing U	Qt.	Width		Height		Area	UA	
Exempt					Feet	Inch	Feet	Inch			
			-						-	-	
1	2	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	6	0	36.0	10.80
2	4	U=0.30 (Code Baseline)	Table 406.2	0.30	1	2	6	3	0	7.5	2.25
3	7	U=0.30 (Code Baseline)	Table 406.2	0.30	3	5	0	4	6	67.5	20.25
Sum of Area and UA									111.0	33.3	
Vertical Glazing Area Weighted U										0.300	
Vertical Glazing and Doors Area Weighted U										0.300	

Flat/Vaulted Ceilings						
Plan ID	Component Description	Ref.	Attic U		Area	UA
	No ceiling/roof in thermal envelope	NA	-			0.0
Sum of Area and UA					0	0.0

Walls (Above Grade)						
Plan ID	Component Description	Ref.	Wall U		Net Area	UA
	R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,196	65
Sum of Area and UA					1,196	65

Floor (over crawl or exterior)							
Plan ID	Component Description	Ref.	Floor U		Area	UA	
Sum of Area and UA					0	0	

Slab on Grade (less than 2 feet below grade)						
Plan ID	Component Description	Ref.	Slab F		Slab Perim	FP
	R10 2' vertical (Code Baseline)	10-2	0.540		133	72
Sum of Perimeter and FP					133	72

Below Grade Walls and Slabs								
Plan ID	Component Description	Ref.	Wall U	Wall Area	Wall UA	Slab F	Slab Perim	Slab UA
Sum of Area, Length and UA				0	0.0		0	0

Ventilation Requirements	
Number of Bedrooms	2
Run-Time Percent in Each 4-Hour Segment	100%
Is the system Balanced?	Balanced
Is the system Distributed?	Distributed
Ventilation Code Section	IMC, Section 403
Whole House Mechanical Ventilation Airflow Rate	55 CFM

HVAC Thermal Distribution System		Download RS-33 (2018) http://www.energy.wsu.edu/Documents/Duct%20Testing%20Standards%20
Is this a hydronic heating system?	No	
Location of Ducts	Unducted	
Location of Air Handler	Unconditioned Space	
Is Duct Testing Required? No		

Links to Download Forms, Checklists and Other Resources		Link
Compliance Certificate		Compliance Certificate Instructions
Insulation Certificate for Residential New Construction		Insulation Certificate
Duct Testing Affidavits		
	Existing Construction	Affidavit Existing
	New Construction	Affidavit New
Prescriptive Checklist for 2018 WSEC		Prescriptive Checklist
Alterations (Remodel) Worksheet		Worksheet

Heating System Sizing - Proposed Design		Try Out BetterBuiltNW's HVAC Sizing Tool: https://betterbuiltnw.com/resources/hvac-sizing-tool
Nearest Weather Station		Puyallup
Indoor Design Temperature		70 F
Outdoor Design Temperature		19 F
Design Temperature Difference (ΔT)		51 F
Conditioned Floor Area, Proposed Design	819 ft2	
Conditioned Volume	6,962 ft3	
Leave blank to use default of 8.5 ft. ceiling height		
HVAC System Type		Heat Pump
Location of HVAC Distribution System		Unducted
Sum of UA, including exempt door and window	182	
Envelope Heat Load	9,275 Btu / Hour	
Sum of UA X ΔT		
Air Leakage Heat Load	3,834 Btu / Hour	
((Volume X 0.6) X ΔT) X .018))		
Building Design Heat Load	13,109 Btu / Hour	
Air Leakage + Envelope Heat Loss		
Building and Duct Heat Load	13,109 Btu / Hour	
For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1		
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1		
Maximum Heat Equipment Output	16,387 Btu / Hour	
Building and Duct Heat Loss X 1.25 for heat pumps		
Building and Duct Heat Loss X 1.40 for all other systems		

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Whole House Mechanical Ventilation Airflow Rate: 55 CFM with Run Time Percent of 100%, Balanced, Distributed
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About Your Selection:	Up to 15 sf exempt window and 24 sf exempt door allowable

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Overhead Glazing U =	0.500	0	0.0		0	0.0	
Vertical Glazing U =	0.300	134	40.1	0.300	134	40.1	
Flat/Vaulted Ceilings U =	0.027	0	0.0		0	0.0	
Wall (above grade) U =	0.056	1,109	62.1	0.054	1,109	59.9	
Floors over Crawlspace U =	0.029	0	0.0		0	0.0	
Slab on Grade F =	0.540	127	68.6	0.540	127	68.6	
Below Grade Wall U =	0.042	0	0.0		0	0.0	
Below Grade Slab F =	0.570	0	0.0		0	0.0	
Baseline UA Total			182.7	Proposed UA Total			180.5
Required Credits			4.5	Proposed Credits			5.5 from Tables 406.2 and 406.3
				UA Percent Reduction			1.2%
				UA Reduction			2.2

If the Proposed UA ≤ the Target UA, and the Proposed Credits from Table 406 are ≥ those required in Section R406, then the home meets the WSEC.

Table R406.2 Fuel Normalization Credits					
System No.	Full Description	Select System Type	Fuel Normalization Credits (406.2)	Energy Credits (406.3)	Total Credits (406.2 & 406.3)
2	For an initial heating system using a heat pump that meets federal standards for the equipment listed in Table C403.3.2(1)C or C403.3.2(2) OR Air to water heat pump units that are configured to provide both heating and cooling and are rated in accordance with AHRI 550/590. Heat pump with electric resistance or fossil-fuel supplemental heat requires compliance with WSEC 403.1.2 "Heat Pump Supplementary Heat". Packaged Terminal Heat Pumps (PTAC-HP) requires an HSPF tested value (See SBC Interpretation dated December 2020).	Heat Pump, air-to-air or air to water	1.0	4.5	5.5

Table R406.3 Energy Credits					
Option No.	Category	Select Options	Energy Credits	Brief Description of Selected Options*	
1	Efficient Building Envelope		0.0		
2	Air Leakage Control and Efficient Ventilation		0.0		
3	High Efficiency HVAC	Option 3.4	2.0	Ductless Split System, Zonal Control. Min HSPF of 10.	
4	High Efficiency HVAC Distribution System		NA		
5.1	Efficient Water Heating		0.0		
5.2-5.6	Efficient Water Heating	Option 5.5	2.5	NEEA Tier 3 heat pump water heater	
6	Renewable Electric Energy		0.0		
7	Appliance Package		0.0		
Energy Credits			4.5		

*Refer to WSEC 2018 Table R406.3 for complete option descriptions and requirements

THERMAL ENVELOPE DETAILS - Proposed Design

Exterior Doors										
Plan	Component		Door		Width		Height		Area	UA
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch		
Exempt									0	0.0
102A	Code Baseline, U=0.30	-	0.30	1	3	0	6	8	20	6.0
102B	Code Baseline, U=0.30	-	0.30	1	3	0	6	8	20	6.0
									0	0.0
									0	0.0
									0	0.0
									0	0.0
									0	0.0
									0	0.0
									0	0.0
									0	0.0
									0	0.0
									0	0.0
									0	0.0
Sum of Area and UA									40	12.0
Exterior Doors Area Weighted U										0.300

Overhead Glazing										
Plan ID	Component Description	Ref.	Glazing U	Qt.	Width		Height		Area	UA
					Feet	Inch	Feet	Inch		
									0	
									0	
									0	
									0	
									0	
									0	
Sum of Area and UA									0	0
Overhead Glazing Area Weighted U										

Vertical Glazing Schedule									Rows to Show	4
Plan ID	Component Description	Ref.	Glazing U	Qt.	Width		Height		Area	UA
Exempt					Feet	Inch	Feet	Inch		
			-						-	-
1	U=0.30 (Code Baseline)	Table 406.2	0.30	1	2	0	3	0	7.5	2.25
2	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	4	6	27.0	8.10
3	U=0.30 (Code Baseline)	Table 406.2	0.30	2	5	0	4	6	45.0	13.50
4	U=0.30 (Code Baseline)	Table 406.2	0.30	3	3	0	6	0	54.0	16.20
Sum of Area and UA									133.5	40.1
Vertical Glazing Area Weighted U									0.300	
Vertical Glazing and Doors Area Weighted U									0.300	

Flat/Vaulted Ceilings						
Plan ID	Component Description	Ref.	Attic U		Area	UA
	No ceiling/roof in thermal envelope	NA	-			0.0
Sum of Area and UA					0	0.0

Walls (Above Grade)						
Plan ID	Component Description	Ref.	Wall U		Net Area	UA
	R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,109	60
Sum of Area and UA					1,109	60

Floor (over crawl or exterior)							
Plan ID	Component Description	Ref.	Floor U		Area	UA	
Sum of Area and UA					0	0	

Slab on Grade (less than 2 feet below grade)						
Plan ID	Component Description	Ref.	Slab F		Slab Perim	FP
	R10 2' vertical (Code Baseline)	10-2	0.540		127	69
Sum of Perimeter and FP					127	69

Below Grade Walls and Slabs								
Plan ID	Component Description	Ref.	Wall U	Wall Area	Wall UA	Slab F	Slab Perim	Slab UA
Sum of Area, Length and UA				0	0.0		0	0

Ventilation Requirements	
Number of Bedrooms	2
Run-Time Percent in Each 4-Hour Segment	100%
Is the system Balanced?	Balanced
Is the system Distributed?	Distributed
Ventilation Code Section	IMC, Section 403
Whole House Mechanical Ventilation Airflow Rate	55 CFM

Verify system meets definition of 'Balanced Whole-House Ventilation'

Verify system meets definition of 'Distributed Whole-House Ventilation'

HVAC Thermal Distribution System		Download RS-33 (2018) http://www.energy.wsu.edu/Documents/Duct%20Testing%20Standards%20
Is this a hydronic heating system?	No	
Location of Ducts	Unducted	
Location of Air Handler	Unconditioned Space	
Is Duct Testing Required? No		

Links to Download Forms, Checklists and Other Resources		Link
Compliance Certificate		Compliance Certificate Instructions
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Prescriptive Checklist for 2018 WSEC		Prescriptive Checklist
Alterations (Remodel) Worksheet		Worksheet

Heating System Sizing - Proposed Design		Try Out BetterBuiltNW's HVAC Sizing Tool: https://betterbuiltnw.com/resources/hvac-sizing-tool
Nearest Weather Station	Puyallup	
Indoor Design Temperature	70 F	
Outdoor Design Temperature	19 F	
Design Temperature Difference (ΔT)	51 F	
Conditioned Floor Area, Proposed Design	779 ft ²	
Conditioned Volume	6,622 ft ³	
Leave blank to use default of 8.5 ft. ceiling height		
HVAC System Type	Heat Pump	
Location of HVAC Distribution System	Unducted	
Sum of UA, including exempt door and window	181	
Envelope Heat Load	9,207 Btu / Hour	
Sum of UA X ΔT		
Air Leakage Heat Load	3,647 Btu / Hour	
((Volume X 0.6) X ΔT) X .018))		
Building Design Heat Load	12,854 Btu / Hour	
Air Leakage + Envelope Heat Loss		
Building and Duct Heat Load	12,854 Btu / Hour	
For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1		
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1		
Maximum Heat Equipment Output	16,067 Btu / Hour	
Building and Duct Heat Loss X 1.25 for heat pumps		
Building and Duct Heat Loss X 1.40 for all other systems		

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Messages / Results *
UA Reduction = 2.41, Proposed UA is better than baseline by 1%
Whole House Mechanical Ventilation Airflow Rate: 55 CFM with Run Time Percent of 100%, Balanced, Distributed
* Results assume your inputs are complete and correct. Results do not constitute an approval. Analysis should be reviewed by your AHJ.

ANALYSIS SET UP

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Component Performance, R occupancies				Proposed Design			
	U	Area	UA	U	Area	UA	
Doors U =	0.300	40	12.0	0.300	40	12.0	
Overhead Glazing U =	0.500	0	0.0		0	0.0	
Vertical Glazing U =	0.300	104	31.1	0.300	104	31.1	
Flat/Vaulted Ceilings U =	0.027	0	0.0		0	0.0	
Wall (above grade) U =	0.056	1,203	67.4	0.054	1,203	65.0	
Floors over Crawlspace U =	0.029	0	0.0		0	0.0	
Slab on Grade F =	0.540	133	72.0	0.540	133	72.0	
Below Grade Wall U =	0.042	0	0.0		0	0.0	
Below Grade Slab F =	0.570	0	0.0		0	0.0	
Baseline UA Total			182.4	Proposed UA Total			180.0
Required Credits			4.5	Proposed Credits			5.5
				UA Percent Reduction			1.3%
				UA Reduction			2.4

If the Proposed UA ≤ the Target UA, and the Proposed Credits from Table 406 are ≥ those required in Section R406, then the home meets the WSEC.

Table R406.2 Fuel Normalization Credits

System No.	Full Description	Select System Type	Fuel Normalization Credits (406.2)	Energy Credits (406.3)	Total Credits (406.2 & 406.3)
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Table R406.3 Energy Credits

Option No.	Category	Select Options	Energy Credits	Brief Description of Selected Options*
1	Efficient Building Envelope		0.0	
2	Air Leakage Control and Efficient Ventilation		0.0	
3	High Efficiency HVAC	Option 3.4	2.0	Ductless Split System, Zonal Control. Min HSPF of 10.
4	High Efficiency HVAC Distribution System		NA	
5.1	Efficient Water Heating		0.0	
5.2-5.6	Efficient Water Heating	Option 5.5	2.5	NEEA Tier 3 heat pump water heater
6	Renewable Electric Energy		0.0	
7	Appliance Package		0.0	
Energy Credits			4.5	

*Refer to WSEC 2018 Table R406.3 for complete option descriptions and requirements

THERMAL ENVELOPE DETAILS - Proposed Design

[illegible]

Overhead Glazing										
Plan ID	Component Description	Ref.	Glazing U	Qt.	Width		Height		Area	UA
					Feet	Inch	Feet	Inch		
									0	
									0	
									0	
									0	
									0	
									0	
Sum of Area and UA									0	0
Overhead Glazing Area Weighted U										

Vertical Glazing Schedule										Rows to Show	2
	Plan ID	Component Description	Ref.	Glazing U	Qt.	Width		Height		Area	UA
						Feet	Inch	Feet	Inch		
	Exempt			-						-	-
1	2	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	6	0	36.0	10.80
2	7	U=0.30 (Code Baseline)	Table 406.2	0.30	3	5	0	4	6	67.5	20.25
Sum of Area and UA										103.5	31.1
Vertical Glazing Area Weighted U											0.300
Vertical Glazing and Doors Area Weighted U											0.300

Flat/Vaulted Ceilings						
Plan ID	Component Description	Ref.	Attic U		Area	UA
	No ceiling/roof in thermal envelope	NA	-			0.0
Sum of Area and UA					0	0.0

Walls (Above Grade)						
Plan ID	Component Description	Ref.	Wall U		Net Area	UA
	R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,203	65
Sum of Area and UA					1,203	65

Floor (over crawl or exterior)						
Plan ID	Component Description	Ref.	Floor U		Area	UA
Sum of Area and UA					0	0

Slab on Grade (less than 2 feet below grade)							
Plan ID	Component Description	Ref.	Slab F		Slab Perim	FP	
	R10 2' vertical (Code Baseline)	10-2	0.540		133	72	
Sum of Perimeter and FP					133	72	

Below Grade Walls and Slabs									
Plan ID	Component Description	Ref.	Wall U	Wall Area	Wall UA	Slab F	Slab Perim	Slab UA	
Sum of Area, Length and UA				0	0.0		0	0	

Ventilation Requirements				
Number of Bedrooms	2			
Run-Time Percent in Each 4-Hour Segment	100%			
Is the system Balanced?	Balanced		Verify system meets definition of 'Balanced Whole-House Ventilation'	
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Location of HVAC Distribution System	Unducted	
Sum of UA, including exempt door and window	180	
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Slab on Grade F =	0.540	127	68.6	0.540	127	68.6	
Below Grade Wall U =	0.042	0	0.0		0	0.0	
Below Grade Slab F =	0.570	0	0.0		0	0.0	
Baseline UA Total			182.7	Proposed UA Total			180.5
Required Credits			4.5	Proposed Credits			5.5 from Tables 406.2 and 406.3
				UA Percent Reduction			1.2%
				UA Reduction			2.2

If the Proposed UA ≤ the Target UA, and the Proposed Credits from Table 406 are ≥ those required in Section R406, then the home meets the WSEC.

Table R406.2 Fuel Normalization Credits

System No.	Full Description	Select System Type	Fuel Normalization Credits (406.2)	Energy Credits (406.3)	Total Credits (406.2 & 406.3)
2	For an initial heating system using a heat pump that meets federal standards for the equipment listed in Table C403.3.2(1)C or C403.3.2(2) OR Air to water heat pump units that are configured to provide both heating and cooling and are rated in accordance with AHRI 550/590. Heat pump with electric resistance or fossil-fuel supplemental heat requires compliance with WSEC 403.1.2 "Heat Pump Supplementary Heat". Packaged Terminal Heat Pumps (PTAC-HP) requires an HSPF tested value (See SBC Interpretation dated December 2020).	Heat Pump, air-to-air or air to water	1.0	4.5	5.5

Table R406.3 Energy Credits

Option No.	Category	Select Options	Energy Credits	Brief Description of Selected Options*
1	Efficient Building Envelope		0.0	
2	Air Leakage Control and Efficient Ventilation		0.0	
3	High Efficiency HVAC	Option 3.4	2.0	Ductless Split System, Zonal Control. Min HSPF of 10.
4	High Efficiency HVAC Distribution System		NA	
5.1	Efficient Water Heating		0.0	
5.2-5.6	Efficient Water Heating	Option 5.5	2.5	NEEA Tier 3 heat pump water heater
6	Renewable Electric Energy		0.0	
7	Appliance Package		0.0	
Energy Credits			4.5	

*Refer to WSEC 2018 Table R406.3 for complete option descriptions and requirements

THERMAL ENVELOPE DETAILS - Proposed Design

[illegible]

Overhead Glazing										
Plan ID	Component Description	Ref.	Glazing U	Qt.	Width		Height		Area	UA
					Feet	Inch	Feet	Inch		
									0	
									0	
									0	
									0	
									0	
									0	
Sum of Area and UA									0	0
Overhead Glazing Area Weighted U										

Vertical Glazing Schedule									Rows to Show	4
Plan ID	Component Description	Ref.	Glazing U	Qt.	Width		Height		Area	UA
Exempt			-		Feet	Inch	Feet	Inch		
									-	-
1	U=0.30 (Code Baseline)	Table 406.2	0.30	1	2	0	3	0	7.5	2.25
2	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	4	6	27.0	8.10
3	U=0.30 (Code Baseline)	Table 406.2	0.30	2	5	0	4	6	45.0	13.50
4	U=0.30 (Code Baseline)	Table 406.2	0.30	3	3	0	6	0	54.0	16.20
Sum of Area and UA									133.5	40.1
Vertical Glazing Area Weighted U										0.300
Vertical Glazing and Doors Area Weighted U										0.300

Flat/Vaulted Ceilings						
Plan ID	Component Description	Ref.	Attic U		Area	UA
	No ceiling/roof in thermal envelope	NA	-			0.0
Sum of Area and UA					0	0.0

Walls (Above Grade)						
Plan ID	Component Description	Ref.	Wall U		Net Area	UA
	R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,109	60
Sum of Area and UA					1,109	60

Floor (over crawl or exterior)							
Plan ID	Component Description	Ref.	Floor U		Area	UA	
Sum of Area and UA					0	0	

Slab on Grade (less than 2 feet below grade)						
Plan ID	Component Description	Ref.	Slab F		Slab Perim	FP
	R10 2' vertical (Code Baseline)	10-2	0.540		127	69
Sum of Perimeter and FP					127	69

Below Grade Walls and Slabs								
Plan ID	Component Description	Ref.	Wall U	Wall Area	Wall UA	Slab F	Slab Perim	Slab UA
Sum of Area, Length and UA				0	0.0		0	0

Ventilation Requirements	
Number of Bedrooms	2
Run-Time Percent in Each 4-Hour Segment	100%
Is the system Balanced?	Balanced
Is the system Distributed?	Distributed
Ventilation Code Section	IMC, Section 403
Whole House Mechanical Ventilation Airflow Rate	55 CFM

Verify system meets definition of 'Balanced Whole-House Ventilation'

Verify system meets definition of 'Distributed Whole-House Ventilation'

HVAC Thermal Distribution System		Download RS-33 (2018) http://www.energy.wsu.edu/Documents/Duct%20Testing%20Standards%20
Is this a hydronic heating system?	No	
Location of Ducts	Unducted	
Location of Air Handler	Unconditioned Space	
Is Duct Testing Required? No		

Links to Download Forms, Checklists and Other Resources		Link
Compliance Certificate		Compliance Certificate Instructions
Insulation Certificate for Residential New Construction		Insulation Certificate
Duct Testing Affidavits	Existing Construction	Affidavit_Existing
	New Construction	Affidavit_New
Prescriptive Checklist for 2018 WSEC		Prescriptive Checklist
Alterations (Remodel) Worksheet		Worksheet

Heating System Sizing - Proposed Design		Try Out BetterBuiltNW's HVAC Sizing Tool: https://betterbuiltnw.com/resources/hvac-sizing-tool
Nearest Weather Station		Puyallup
Indoor Design Temperature		70 F
Outdoor Design Temperature		19 F
Design Temperature Difference (ΔT)		51 F
Conditioned Floor Area, Proposed Design		779 ft2
Conditioned Volume		6,622 ft3
Leave blank to use default of 8.5 ft. ceiling height		
HVAC System Type		Heat Pump
Location of HVAC Distribution System		Unducted
Sum of UA, including exempt door and window		181
Envelope Heat Load		9,207 Btu / Hour
Sum of UA X ΔT		
Air Leakage Heat Load		3,647 Btu / Hour
((Volume X 0.6) X ΔT) X .018))		
Building Design Heat Load		12,854 Btu / Hour
Air Leakage + Envelope Heat Loss		
Building and Duct Heat Load		12,854 Btu / Hour
For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1		
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1		
Maximum Heat Equipment Output		16,067 Btu / Hour
Building and Duct Heat Loss X 1.25 for heat pumps		
Building and Duct Heat Loss X 1.40 for all other systems		

Project Information
East Town Crossing Unit 201 Building A Pioneer & Shaw, Puyallup
Contact Information
Synthesis 9, LLC Brett Lindsay blindsay@synthesis9.com 253-468-4117

Messages / Results *
UA Reduction = 2.42, Proposed UA is better than baseline by 2%
Whole House Mechanical Ventilation Airflow Rate: 55 CFM with Run Time Percent of 100%, Balanced, Distributed
* Results assume your inputs are complete and correct. Results do not constitute an approval. Analysis should be reviewed by your AHJ.

ANALYSIS SET UP

What code compliance pathway are you using?	Prescriptive Path Compliance with Option 1 (preferred)
Project Building Type?	New Construction
Occupancy Type?	R2 Multifamily
Code Version?	WSEC 2018
Classification:	Small Dwelling Unit -- 819 sq. ft.
Baseline Description:	Code Baseline - Baseline and proposed window areas are equal.
About Your Selection:	Up to 15 sf exempt window and 24 sf exempt door allowable

RESULTS - Comparison of Baseline and Proposed Design

Component Performance, R occupancies				Proposed Design			
	U	Area	UA	U	Area	UA	
Doors U =	0.300	40	12.0	0.300	40	12.0	
Overhead Glazing U =	0.500	0	0.0		0	0.0	
Vertical Glazing U =	0.300	111	33.3	0.300	111	33.3	
Flat/Vaulted Ceilings U =	0.027	0	0.0		0	0.0	
Wall (above grade) U =	0.056	1,209	67.7	0.054	1,209	65.3	
Floors over Crawlspace U =	0.029	0	0.0		0	0.0	
Slab on Grade F =	0.540	0	0.0		0	0.0	
Below Grade Wall U =	0.042	0	0.0		0	0.0	
Below Grade Slab F =	0.570	0	0.0		0	0.0	
Baseline UA Total			113.0	Proposed UA Total			110.6
Required Credits			4.5	Proposed Credits			5.5
				UA Percent Reduction			2.1%
				UA Reduction			2.4

If the Proposed UA ≤ the Target UA, and the Proposed Credits from Table 406 are ≥ those required in Section R406, then the home meets the WSEC.

Table R406.2 Fuel Normalization Credits					
System No.	Full Description	Select System Type	Fuel Normalization Credits (406.2)	Energy Credits (406.3)	Total Credits (406.2 & 406.3)
2	For an initial heating system using a heat pump that meets federal standards for the equipment listed in Table C403.3.2(1)C or C403.3.2(2) OR Air to water heat pump units that are configured to provide both heating and cooling and are rated in accordance with AHRI 550/590. Heat pump with electric resistance or fossil-fuel supplemental heat requires compliance with WSEC 403.1.2 "Heat Pump Supplementary Heat". Packaged Terminal Heat Pumps (PTAC-HP) requires an HSPF tested value (See SBC Interpretation dated December 2020).	Heat Pump, air-to-air or air to water	1.0	4.5	5.5

Table R406.3 Energy Credits					
Option No.	Category	Select Options	Energy Credits	Brief Description of Selected Options*	
1	Efficient Building Envelope		0.0		
2	Air Leakage Control and Efficient Ventilation		0.0		
3	High Efficiency HVAC	Option 3.4	2.0	Ductless Split System, Zonal Control. Min HSPF of 10.	
4	High Efficiency HVAC Distribution System		NA		
5.1	Efficient Water Heating		0.0		
5.2-5.6	Efficient Water Heating	Option 5.5	2.5	NEEA Tier 3 heat pump water heater	
6	Renewable Electric Energy		0.0		
7	Appliance Package		0.0		
Energy Credits			4.5		

*Refer to WSEC 2018 Table R406.3 for complete option descriptions and requirements

THERMAL ENVELOPE DETAILS - Proposed Design

Exterior Doors										
Plan	Component		Door		Width		Height			
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt									0	0.0
201A	Code Baseline, U=0.30	-	0.30	1	3	0	6	8	20	6.0
201B	Code Baseline, U=0.30	-	0.30	1	3	0	6	8	20	6.0
									0	0.0
									0	0.0
									0	0.0
									0	0.0
									0	0.0
									0	0.0
									0	0.0
									0	0.0
									0	0.0
									0	0.0
Sum of Area and UA									40	12.0
Exterior Doors Area Weighted U										0.300

Overhead Glazing										
Plan ID	Component Description	Ref.	Glazing U	Qt.	Width		Height		Area	UA
					Feet	Inch	Feet	Inch		
									0	
									0	
									0	
									0	
									0	
									0	
Sum of Area and UA									0	0
Overhead Glazing Area Weighted U										

Vertical Glazing Schedule										Rows to Show	3
Plan ID	Component Description	Ref.	Glazing U	Qt.	Width		Height		Area	UA	
Exempt					Feet	Inch	Feet	Inch			
			-						-	-	
1	2	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	6	0	36.0	10.80
2	4	U=0.30 (Code Baseline)	Table 406.2	0.30	1	2	6	3	0	7.5	2.25
3	7	U=0.30 (Code Baseline)	Table 406.2	0.30	3	5	0	4	6	67.5	20.25
Sum of Area and UA									111.0	33.3	
Vertical Glazing Area Weighted U										0.300	
Vertical Glazing and Doors Area Weighted U										0.300	

Flat/Vaulted Ceilings						
Plan ID	Component Description	Ref.	Attic U		Area	UA
	No ceiling/roof in thermal envelope	NA	-			0.0
Sum of Area and UA					0	0.0

Walls (Above Grade)						
Plan ID	Component Description	Ref.	Wall U		Net Area	UA
	R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,209	65
Sum of Area and UA					1,209	65

Floor (over crawl or exterior)						
Plan ID	Component Description	Ref.	Floor U		Area	UA
	No floors in thermal envelope	NA	-			0
Sum of Area and UA					0	0

Slab on Grade (less than 2 feet below grade)						
Plan ID	Component Description	Ref.	Slab F		Slab Perim	FP
	No slab on grade	NA	-			0
Sum of Perimeter and FP					0	0

Below Grade Walls and Slabs									
Plan ID	Component Description	Ref.	Wall U	Wall Area	Wall UA	Slab F	Slab Perim	Slab UA	
Sum of Area, Length and UA				0	0.0		0	0	

Ventilation Requirements	
Number of Bedrooms	2
Run-Time Percent in Each 4-Hour Segment	100%
Is the system Balanced?	Balanced
Is the system Distributed?	Distributed
Ventilation Code Section	IMC, Section 403
Whole House Mechanical Ventilation Airflow Rate	55 CFM

HVAC Thermal Distribution System		Download RS-33 (2018) http://www.energy.wsu.edu/Documents/Duct%20Testing%20Standards%20
Is this a hydronic heating system?	No	
Location of Ducts	Unducted	
Location of Air Handler	Unconditioned Space	
Is Duct Testing Required? No		

Links to Download Forms, Checklists and Other Resources	Link
Compliance Certificate	Compliance Certificate Instructions
Insulation Certificate for Residential New Construction	Insulation Certificate
Duct Testing Affidavits	
	Existing Construction Affidavit Existing
	New Construction Affidavit New
Prescriptive Checklist for 2018 WSEC	Prescriptive Checklist
Alterations (Remodel) Worksheet	Worksheet

Heating System Sizing - Proposed Design		Try Out BetterBuiltNW's HVAC Sizing Tool: https://betterbuiltnw.com/resources/hvac-sizing-tool
Nearest Weather Station	Puyallup	
Indoor Design Temperature	70 F	
Outdoor Design Temperature	19 F	
Design Temperature Difference (ΔT)	51 F	
Conditioned Floor Area, Proposed Design	819 ft ²	
Conditioned Volume	6,962 ft ³	
Leave blank to use default of 8.5 ft. ceiling height		
HVAC System Type	Heat Pump	
Location of HVAC Distribution System	Unducted	
Sum of UA, including exempt door and window	111	
Envelope Heat Load	5,640 Btu / Hour	
Sum of UA X ΔT		
Air Leakage Heat Load	3,834 Btu / Hour	
((Volume X 0.6) X ΔT) X .018))		
Building Design Heat Load	9,474 Btu / Hour	
Air Leakage + Envelope Heat Loss		
Building and Duct Heat Load	9,474 Btu / Hour	
For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1		
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1		
Maximum Heat Equipment Output	11,843 Btu / Hour	
Building and Duct Heat Loss X 1.25 for heat pumps		
Building and Duct Heat Loss X 1.40 for all other systems		

Project Information
East Town Crossing Unit 202 Building A Pioneer & Shaw, Puyallup
Contact Information
Synthesis 9, LLC Brett Lindsay blindsay@synthesis9.com 253-468-4117

Messages / Results *
UA Reduction = 2.2, Proposed UA is better than baseline by 2%
Whole House Mechanical Ventilation Airflow Rate: 55 CFM with Run Time Percent of 100%, Balanced, Distributed
* Results assume your inputs are complete and correct. Results do not constitute an approval. Analysis should be reviewed by your AHJ.

ANALYSIS SET UP

What code compliance pathway are you using?	Prescriptive Path Compliance with Option 1 (preferred)
Project Building Type?	New Construction
Occupancy Type?	R2 Multifamily
Code Version?	WSEC 2018
Classification:	Small Dwelling Unit -- 779 sq. ft.
Baseline Description:	Code Baseline - Baseline and proposed window areas are equal.
About Your Selection:	Up to 15 sf exempt window and 24 sf exempt door allowable

RESULTS - Comparison of Baseline and Proposed Design

Component Performance, R occupancies				Proposed Design			
	U	Area	UA	U	Area	UA	
Doors U =	0.300	40	12.0	0.300	40	12.0	
Overhead Glazing U =	0.500	0	0.0		0	0.0	
Vertical Glazing U =	0.300	143	42.8	0.300	143	42.8	
Flat/Vaulted Ceilings U =	0.027	0	0.0		0	0.0	
Wall (above grade) U =	0.056	1,100	61.6	0.054	1,100	59.4	
Floors over Crawlspace U =	0.029	0	0.0		0	0.0	
Slab on Grade F =	0.540	0	0.0		0	0.0	
Below Grade Wall U =	0.042	0	0.0		0	0.0	
Below Grade Slab F =	0.570	0	0.0		0	0.0	
Baseline UA Total			116.4	Proposed UA Total			114.2
Required Credits			4.5	Proposed Credits			5.5 from Tables 406.2 and 406.3
				UA Percent Reduction			1.9%
				UA Reduction			2.2

If the Proposed UA ≤ the Target UA, and the Proposed Credits from Table 406 are ≥ those required in Section R406, then the home meets the WSEC.

Table R406.2 Fuel Normalization Credits

System No.	Full Description	Select System Type	Fuel Normalization Credits (406.2)	Energy Credits (406.3)	Total Credits (406.2 & 406.3)
2	For an initial heating system using a heat pump that meets federal standards for the equipment listed in Table C403.3.2(1)C or C403.3.2(2) OR Air to water heat pump units that are configured to provide both heating and cooling and are rated in accordance with AHRI 550/590. Heat pump with electric resistance or fossil-fuel supplemental heat requires compliance with WSEC 403.1.2 "Heat Pump Supplementary Heat". Packaged Terminal Heat Pumps (PTAC-HP) requires an HSPF tested value (See SBC Interpretation dated December 2020).	Heat Pump, air-to-air or air to water	1.0	4.5	5.5

Table R406.3 Energy Credits

Option No.	Category	Select Options	Energy Credits	Brief Description of Selected Options*
1	Efficient Building Envelope		0.0	
2	Air Leakage Control and Efficient Ventilation		0.0	
3	High Efficiency HVAC	Option 3.4	2.0	Ductless Split System, Zonal Control. Min HSPF of 10.
4	High Efficiency HVAC Distribution System		NA	
5.1	Efficient Water Heating		0.0	
5.2-5.6	Efficient Water Heating	Option 5.5	2.5	NEEA Tier 3 heat pump water heater
6	Renewable Electric Energy		0.0	
7	Appliance Package		0.0	
Energy Credits			4.5	

*Refer to WSEC 2018 Table R406.3 for complete option descriptions and requirements

THERMAL ENVELOPE DETAILS - Proposed Design

Overhead Glazing										
Plan ID	Component Description	Ref.	Glazing U	Qt.	Width		Height		Area	UA
					Feet	Inch	Feet	Inch		
									0	
									0	
									0	
									0	
									0	
									0	
Sum of Area and UA									0	0
Overhead Glazing Area Weighted U										

Flat/Vaulted Ceilings						
Plan ID	Component Description	Ref.	Attic U		Area	UA
	No ceiling/roof in thermal envelope	NA	-			0.0
Sum of Area and UA					0	0.0

Floor (over crawl or exterior)						
Plan ID	Component Description	Ref.	Floor U		Area	UA
	No floors in thermal envelope	NA	-			0
Sum of Area and UA					0	0

Slab on Grade (less than 2 feet below grade)						
Plan ID	Component Description	Ref.	Slab F		Slab Perim	FP
	No slab on grade	NA	-			0
Sum of Perimeter and FP					0	0

Below Grade Walls and Slabs									
Plan ID	Component Description	Ref.	Wall U	Wall Area	Wall UA	Slab F	Slab Perim	Slab UA	
Sum of Area, Length and UA				0	0.0		0	0	

Ventilation Requirements	
Number of Bedrooms	2
Run-Time Percent in Each 4-Hour Segment	100%
Is the system Balanced?	Balanced
Is the system Distributed?	Distributed
Ventilation Code Section	IMC, Section 403
Whole House Mechanical Ventilation Airflow Rate	55 CFM

HVAC Thermal Distribution System		Download RS-33 (2018) http://www.energy.wsu.edu/Documents/Duct%20Testing%20Standards%20
Is this a hydronic heating system?	No	
Location of Ducts	Unducted	
Location of Air Handler	Unconditioned Space	
Is Duct Testing Required? No		

Links to Download Forms, Checklists and Other Resources	Link
Compliance Certificate	Compliance Certificate Instructions
Insulation Certificate for Residential New Construction	Insulation Certificate
Duct Testing Affidavits	
	Existing Construction Affidavit Existing
	New Construction Affidavit New
Prescriptive Checklist for 2018 WSEC	Prescriptive Checklist
Alterations (Remodel) Worksheet	Worksheet

Heating System Sizing - Proposed Design		Try Out BetterBuiltNW's HVAC Sizing Tool: https://betterbuiltnw.com/resources/hvac-sizing-tool
Nearest Weather Station	Puyallup	
Indoor Design Temperature	70 F	
Outdoor Design Temperature	19 F	
Design Temperature Difference (ΔT)	51 F	
Conditioned Floor Area, Proposed Design	779 ft2	
Conditioned Volume	6,622 ft3	
Leave blank to use default of 8.5 ft. ceiling height		
HVAC System Type	Heat Pump	
Location of HVAC Distribution System	Unducted	
Sum of UA, including exempt door and window	114	
Envelope Heat Load	5,822 Btu / Hour	
Sum of UA X ΔT		
Air Leakage Heat Load	3,647 Btu / Hour	
((Volume X 0.6) X ΔT) X .018))		
Building Design Heat Load	9,469 Btu / Hour	
Air Leakage + Envelope Heat Loss		
Building and Duct Heat Load	9,469 Btu / Hour	
For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1		
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1		
Maximum Heat Equipment Output	11,837 Btu / Hour	
Building and Duct Heat Loss X 1.25 for heat pumps		
Building and Duct Heat Loss X 1.40 for all other systems		

Project Information
East Town Crossing Unit 203 Building A Pioneer & Shaw, Puyallup
Contact Information
Synthesis 9, LLC Brett Lindsay blindsay@synthesis9.com 253-468-4117

Messages / Results *
UA Reduction = 2.39, Proposed UA is better than baseline by 2%
Whole House Mechanical Ventilation Airflow Rate: 55 CFM with Run Time Percent of 100%, Balanced, Distributed
* Results assume your inputs are complete and correct. Results do not constitute an approval. Analysis should be reviewed by your AHJ.

ANALYSIS SET UP

What code compliance pathway are you using?	Prescriptive Path Compliance with Option 1 (preferred)
Project Building Type?	New Construction
Occupancy Type?	R2 Multifamily
Code Version?	WSEC 2018
Classification:	Small Dwelling Unit -- 819 sq. ft.
Baseline Description:	Code Baseline - Baseline and proposed window areas are equal.
About Your Selection:	Up to 15 sf exempt window and 24 sf exempt door allowable

RESULTS - Comparison of Baseline and Proposed Design

Component Performance, R occupancies				Proposed Design			
	U	Area	UA	U	Area	UA	
Doors U =	0.300	40	12.0	0.300	40	12.0	
Overhead Glazing U =	0.500	0	0.0		0	0.0	
Vertical Glazing U =	0.300	111	33.3	0.300	111	33.3	
Flat/Vaulted Ceilings U =	0.027	0	0.0		0	0.0	
Wall (above grade) U =	0.056	1,196	67.0	0.054	1,196	64.6	
Floors over Crawlspace U =	0.029	0	0.0		0	0.0	
Slab on Grade F =	0.540	0	0.0		0	0.0	
Below Grade Wall U =	0.042	0	0.0		0	0.0	
Below Grade Slab F =	0.570	0	0.0		0	0.0	
Baseline UA Total			112.3	Proposed UA Total			109.9
Required Credits			4.5	Proposed Credits			5.5
				UA Percent Reduction			2.1%
				UA Reduction			2.4

If the Proposed UA ≤ the Target UA, and the Proposed Credits from Table 406 are ≥ those required in Section R406, then the home meets the WSEC.

Table R406.2 Fuel Normalization Credits

System No.	Full Description	Select System Type	Fuel Normalization Credits (406.2)	Energy Credits (406.3)	Total Credits (406.2 & 406.3)
2	For an initial heating system using a heat pump that meets federal standards for the equipment listed in Table C403.3.2(1)C or C403.3.2(2) OR Air to water heat pump units that are configured to provide both heating and cooling and are rated in accordance with AHRI 550/590. Heat pump with electric resistance or fossil-fuel supplemental heat requires compliance with WSEC 403.1.2 "Heat Pump Supplementary Heat". Packaged Terminal Heat Pumps (PTAC-HP) requires an HSPF tested value (See SBC Interpretation dated December 2020).	Heat Pump, air-to-air or air to water	1.0	4.5	5.5

Table R406.3 Energy Credits

Option No.	Category	Select Options	Energy Credits	Brief Description of Selected Options*
1	Efficient Building Envelope		0.0	
2	Air Leakage Control and Efficient Ventilation		0.0	
3	High Efficiency HVAC	Option 3.4	2.0	Ductless Split System, Zonal Control. Min HSPF of 10.
4	High Efficiency HVAC Distribution System		NA	
5.1	Efficient Water Heating		0.0	
5.2-5.6	Efficient Water Heating	Option 5.5	2.5	NEEA Tier 3 heat pump water heater
6	Renewable Electric Energy		0.0	
7	Appliance Package		0.0	
Energy Credits			4.5	

*Refer to WSEC 2018 Table R406.3 for complete option descriptions and requirements

THERMAL ENVELOPE DETAILS - Proposed Design

[illegible]

Overhead Glazing										
Plan ID	Component Description	Ref.	Glazing U	Qt.	Width		Height		Area	UA
					Feet	Inch	Feet	Inch		
									0	
									0	
									0	
									0	
									0	
									0	
Sum of Area and UA									0	0
Overhead Glazing Area Weighted U										

Vertical Glazing Schedule										Rows to Show	3
Plan ID	Component Description	Ref.	Glazing U	Qt.	Width		Height		Area	UA	
Exempt					Feet	Inch	Feet	Inch			
			-						-	-	
1	2	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	6	0	36.0	10.80
2	7	U=0.30 (Code Baseline)	Table 406.2	0.30	3	5	0	4	6	67.5	20.25
3	4	U=0.30 (Code Baseline)	Table 406.2	0.30	1	2	6	3	0	7.5	2.25
Sum of Area and UA									111.0	33.3	
Vertical Glazing Area Weighted U										0.300	
Vertical Glazing and Doors Area Weighted U										0.300	

Flat/Vaulted Ceilings						
Plan ID	Component Description	Ref.	Attic U		Area	UA
	No ceiling/roof in thermal envelope	NA	-			0.0
Sum of Area and UA					0	0.0

Walls (Above Grade)						
Plan ID	Component Description	Ref.	Wall U		Net Area	UA
	R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,196	65
Sum of Area and UA					1,196	65

Floor (over crawl or exterior)						
Plan ID	Component Description	Ref.	Floor U		Area	UA
	No floors in thermal envelope	NA	-			0
Sum of Area and UA					0	0

Slab on Grade (less than 2 feet below grade)						
Plan ID	Component Description	Ref.	Slab F		Slab Perim	FP
	No slab on grade	NA	-			0
Sum of Perimeter and FP					0	0

Below Grade Walls and Slabs									
Plan ID	Component Description	Ref.	Wall U	Wall Area	Wall UA	Slab F	Slab Perim	Slab UA	
Sum of Area, Length and UA				0	0.0		0	0	

Ventilation Requirements	
Number of Bedrooms	2
Run-Time Percent in Each 4-Hour Segment	100%
Is the system Balanced?	Balanced
Is the system Distributed?	Distributed
Ventilation Code Section	IMC, Section 403
Whole House Mechanical Ventilation Airflow Rate	55 CFM

HVAC Thermal Distribution System		Download RS-33 (2018) http://www.energy.wsu.edu/Documents/Duct%20Testing%20Standards%20
Is this a hydronic heating system?	No	
Location of Ducts	Unducted	
Location of Air Handler	Unconditioned Space	
Is Duct Testing Required? No		

Links to Download Forms, Checklists and Other Resources	Link
Compliance Certificate	Compliance Certificate Instructions
Insulation Certificate for Residential New Construction	Insulation Certificate
Duct Testing Affidavits	
	Existing Construction Affidavit Existing
	New Construction Affidavit New
Prescriptive Checklist for 2018 WSEC	Prescriptive Checklist
Alterations (Remodel) Worksheet	Worksheet

Heating System Sizing - Proposed Design		Try Out BetterBuiltNW's HVAC Sizing Tool: https://betterbuiltnw.com/resources/hvac-sizing-tool
Nearest Weather Station	Puyallup	
Indoor Design Temperature	70 F	
Outdoor Design Temperature	19 F	
Design Temperature Difference (ΔT)	51 F	
Conditioned Floor Area, Proposed Design	819 ft ²	
Conditioned Volume	6,962 ft ³	
Leave blank to use default of 8.5 ft. ceiling height		
HVAC System Type	Heat Pump	
Location of HVAC Distribution System	Unducted	
Sum of UA, including exempt door and window	110	
Envelope Heat Load	5,603 Btu / Hour	
Sum of UA X ΔT		
Air Leakage Heat Load	3,834 Btu / Hour	
((Volume X 0.6) X ΔT) X .018))		
Building Design Heat Load	9,437 Btu / Hour	
Air Leakage + Envelope Heat Loss		
Building and Duct Heat Load	9,437 Btu / Hour	
For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1		
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1		
Maximum Heat Equipment Output	11,797 Btu / Hour	
Building and Duct Heat Loss X 1.25 for heat pumps		
Building and Duct Heat Loss X 1.40 for all other systems		

Project Information
East Town Crossing Unit 204 Building A Pioneer & Shaw, Puyallup
Contact Information
Synthesis 9, LLC Brett Lindsay blindsay@synthesis9.com 253-468-4117

Messages / Results *
UA Reduction = 2.2, Proposed UA is better than baseline by 2%
Whole House Mechanical Ventilation Airflow Rate: 55 CFM with Run Time Percent of 100%, Balanced, Distributed
* Results assume your inputs are complete and correct. Results do not constitute an approval. Analysis should be reviewed by your AHJ.

ANALYSIS SET UP

What code compliance pathway are you using?	Prescriptive Path Compliance with Option 1 (preferred)
Project Building Type?	New Construction
Occupancy Type?	R2 Multifamily
Code Version?	WSEC 2018
Classification:	Small Dwelling Unit -- 779 sq. ft.
Baseline Description:	Code Baseline - Baseline and proposed window areas are equal.
About Your Selection:	Up to 15 sf exempt window and 24 sf exempt door allowable

RESULTS - Comparison of Baseline and Proposed Design

Component Performance, R occupancies				Proposed Design			
	U	Area	UA	U	Area	UA	
Doors U =	0.300	40	12.0	0.300	40	12.0	
Overhead Glazing U =	0.500	0	0.0		0	0.0	
Vertical Glazing U =	0.300	143	42.8	0.300	143	42.8	
Flat/Vaulted Ceilings U =	0.027	0	0.0		0	0.0	
Wall (above grade) U =	0.056	1,100	61.6	0.054	1,100	59.4	
Floors over Crawlspace U =	0.029	0	0.0		0	0.0	
Slab on Grade F =	0.540	0	0.0		0	0.0	
Below Grade Wall U =	0.042	0	0.0		0	0.0	
Below Grade Slab F =	0.570	0	0.0		0	0.0	
Baseline UA Total			116.4	Proposed UA Total			114.2
Required Credits			4.5	Proposed Credits			5.5 from Tables 406.2 and 406.3
				UA Percent Reduction			1.9%
				UA Reduction			2.2

If the Proposed UA ≤ the Target UA, and the Proposed Credits from Table 406 are ≥ those required in Section R406, then the home meets the WSEC.

Table R406.2 Fuel Normalization Credits

System No.	Full Description	Select System Type	Fuel Normalization Credits (406.2)	Energy Credits (406.3)	Total Credits (406.2 & 406.3)
2	For an initial heating system using a heat pump that meets federal standards for the equipment listed in Table C403.3.2(1)C or C403.3.2(2) OR Air to water heat pump units that are configured to provide both heating and cooling and are rated in accordance with AHRI 550/590. Heat pump with electric resistance or fossil-fuel supplemental heat requires compliance with WSEC 403.1.2 "Heat Pump Supplementary Heat". Packaged Terminal Heat Pumps (PTAC-HP) requires an HSPF tested value (See SBC Interpretation dated December 2020).	Heat Pump, air-to-air or air to water	1.0	4.5	5.5

Table R406.3 Energy Credits

Option No.	Category	Select Options	Energy Credits	Brief Description of Selected Options*
1	Efficient Building Envelope		0.0	
2	Air Leakage Control and Efficient Ventilation		0.0	
3	High Efficiency HVAC	Option 3.4	2.0	Ductless Split System, Zonal Control. Min HSPF of 10.
4	High Efficiency HVAC Distribution System		NA	
5.1	Efficient Water Heating		0.0	
5.2-5.6	Efficient Water Heating	Option 5.5	2.5	NEEA Tier 3 heat pump water heater
6	Renewable Electric Energy		0.0	
7	Appliance Package		0.0	
Energy Credits			4.5	

*Refer to WSEC 2018 Table R406.3 for complete option descriptions and requirements

THERMAL ENVELOPE DETAILS - Proposed Design

[illegible]

Overhead Glazing										
Plan ID	Component Description	Ref.	Glazing U	Qt.	Width		Height		Area	UA
					Feet	Inch	Feet	Inch		
									0	
									0	
									0	
									0	
									0	
									0	
Sum of Area and UA									0	0
Overhead Glazing Area Weighted U										

Vertical Glazing Schedule										Rows to Show	3
Plan ID	Component Description	Ref.	Glazing U	Qt.	Width		Height		Area	UA	
					Feet	Inch	Feet	Inch			
Exempt			-						-	-	
1	U=0.30 (Code Baseline)	Table 406.2	0.30	1	2	6	3	0	7.5	2.25	
2	U=0.30 (Code Baseline)	Table 406.2	0.30	3	6	0	4	6	81.0	24.30	
3	U=0.30 (Code Baseline)	Table 406.2	0.30	3	3	0	6	0	54.0	16.20	
Sum of Area and UA									142.5	42.8	
Vertical Glazing Area Weighted U										0.300	
Vertical Glazing and Doors Area Weighted U										0.300	

Flat/Vaulted Ceilings						
Plan ID	Component Description	Ref.	Attic U		Area	UA
	No ceiling/roof in thermal envelope	NA	-			0.0
Sum of Area and UA					0	0.0

Walls (Above Grade)						
Plan ID	Component Description	Ref.	Wall U		Net Area	UA
	R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,100	59
Sum of Area and UA					1,100	59

Floor (over crawl or exterior)						
Plan ID	Component Description	Ref.	Floor U		Area	UA
	No floors in thermal envelope	NA	-			0
Sum of Area and UA					0	0

Slab on Grade (less than 2 feet below grade)						
Plan ID	Component Description	Ref.	Slab F		Slab Perim	FP
	No slab on grade	NA	-			0
Sum of Perimeter and FP					0	0

Below Grade Walls and Slabs									
Plan ID	Component Description	Ref.	Wall U	Wall Area	Wall UA	Slab F	Slab Perim	Slab UA	
Sum of Area, Length and UA				0	0.0		0	0	

Ventilation Requirements			
Number of Bedrooms	2		
Run-Time Percent in Each 4-Hour Segment	100%		
Is the system Balanced?	Balanced	Verify system meets definition of 'Balanced Whole-House Ventilation'	
Is the system Distributed?	Distributed	Verify system meets definition of 'Distributed Whole-House Ventilation'	
Ventilation Code Section	IMC, Section 403		
Whole House Mechanical Ventilation Airflow Rate	55	CFM	

HVAC Thermal Distribution System		Download RS-33 (2018) http://www.energy.wsu.edu/Documents/Duct%20Testing%20Standards%20	
Is this a hydronic heating system?	No		
Location of Ducts	Unducted		
Location of Air Handler	Unconditioned Space		
Is Duct Testing Required? No			

Links to Download Forms, Checklists and Other Resources		Link
Compliance Certificate		Compliance Certificate Instructions
Insulation Certificate for Residential New Construction		Insulation Certificate
Duct Testing Affidavits		
	Existing Construction	Affidavit Existing
	New Construction	Affidavit New
Prescriptive Checklist for 2018 WSEC		Prescriptive Checklist
Alterations (Remodel) Worksheet		Worksheet

Heating System Sizing - Proposed Design		Try Out BetterBuiltNW's HVAC Sizing Tool: https://betterbuiltnw.com/resources/hvac-sizing-tool	
Nearest Weather Station		Puyallup	
Indoor Design Temperature	70 F		
Outdoor Design Temperature	19 F		
Design Temperature Difference (ΔT)	51 F		
Conditioned Floor Area, Proposed Design	779 ft2		
Conditioned Volume	6,622 ft3		
Leave blank to use default of 8.5 ft. ceiling height			
HVAC System Type		Heat Pump	
Location of HVAC Distribution System		Unducted	
Sum of UA, including exempt door and window	114		
Envelope Heat Load	5,822 Btu / Hour		
Sum of UA X ΔT			
Air Leakage Heat Load	3,647 Btu / Hour		
((Volume X 0.6) X ΔT) X .018))			
Building Design Heat Load	9,469 Btu / Hour		
Air Leakage + Envelope Heat Loss			
Building and Duct Heat Load	9,469 Btu / Hour		
For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1			
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1			
Maximum Heat Equipment Output	11,837 Btu / Hour		
Building and Duct Heat Loss X 1.25 for heat pumps			
Building and Duct Heat Loss X 1.40 for all other systems			

Project Information
East Town Crossing Unit 301 Building A Pioneer & Shaw, Puyallup
Contact Information
Synthesis 9, LLC Brett Lindsay blindsay@synthesis9.com 253-468-4117

Messages / Results *
UA Reduction = 2.42, Proposed UA is better than baseline by 2%
Whole House Mechanical Ventilation Airflow Rate: 55 CFM with Run Time Percent of 100%, Balanced, Distributed
* Results assume your inputs are complete and correct. Results do not constitute an approval. Analysis should be reviewed by your AHJ.

ANALYSIS SET UP

What code compliance pathway are you using?	Prescriptive Path Compliance with Option 1 (preferred)
Project Building Type?	New Construction
Occupancy Type?	R2 Multifamily
Code Version?	WSEC 2018
Classification:	Small Dwelling Unit -- 819 sq. ft.
Baseline Description:	Code Baseline - Baseline and proposed window areas are equal.
About Your Selection:	Up to 15 sf exempt window and 24 sf exempt door allowable

RESULTS - Comparison of Baseline and Proposed Design

Component Performance, R occupancies				Proposed Design			
	U	Area	UA	U	Area	UA	
Doors U =	0.300	40	12.0	0.300	40	12.0	
Overhead Glazing U =	0.500	0	0.0		0	0.0	
Vertical Glazing U =	0.300	111	33.3	0.300	111	33.3	
Flat/Vaulted Ceilings U =	0.027	819	22.1	0.027	819	22.1	
Wall (above grade) U =	0.056	1,209	67.7	0.054	1,209	65.3	
Floors over Crawlspace U =	0.029	0	0.0		0	0.0	
Slab on Grade F =	0.540	0	0.0		0	0.0	
Below Grade Wall U =	0.042	0	0.0		0	0.0	
Below Grade Slab F =	0.570	0	0.0		0	0.0	
Baseline UA Total			135.1	Proposed UA Total			132.7
Required Credits			4.5	Proposed Credits			5.5 from Tables 406.2 and 406.3
				UA Percent Reduction			1.8%
				UA Reduction			2.4

If the Proposed UA ≤ the Target UA, and the Proposed Credits from Table 406 are ≥ those required in Section R406, then the home meets the WSEC.

Table R406.2 Fuel Normalization Credits

System No.	Full Description	Select System Type	Fuel Normalization Credits (406.2)	Energy Credits (406.3)	Total Credits (406.2 & 406.3)
2	For an initial heating system using a heat pump that meets federal standards for the equipment listed in Table C403.3.2(1)C or C403.3.2(2) OR Air to water heat pump units that are configured to provide both heating and cooling and are rated in accordance with AHRI 550/590. Heat pump with electric resistance or fossil-fuel supplemental heat requires compliance with WSEC 403.1.2 "Heat Pump Supplementary Heat". Packaged Terminal Heat Pumps (PTAC-HP) requires an HSPF tested value (See SBC Interpretation dated December 2020).	Heat Pump, air-to-air or air to water	1.0	4.5	5.5

Table R406.3 Energy Credits

Option No.	Category	Select Options	Energy Credits	Brief Description of Selected Options*
1	Efficient Building Envelope		0.0	
2	Air Leakage Control and Efficient Ventilation		0.0	
3	High Efficiency HVAC	Option 3.4	2.0	Ductless Split System, Zonal Control. Min HSPF of 10.
4	High Efficiency HVAC Distribution System		NA	
5.1	Efficient Water Heating		0.0	
5.2-5.6	Efficient Water Heating	Option 5.5	2.5	NEEA Tier 3 heat pump water heater
6	Renewable Electric Energy		0.0	
7	Appliance Package		0.0	
Energy Credits			4.5	

*Refer to WSEC 2018 Table R406.3 for complete option descriptions and requirements

THERMAL ENVELOPE DETAILS - Proposed Design

Overhead Glazing										
Plan ID	Component Description	Ref.	Glazing U	Qt.	Width		Height		Area	UA
					Feet	Inch	Feet	Inch		
									0	
									0	
									0	
									0	
									0	
									0	
Sum of Area and UA									0	0
Overhead Glazing Area Weighted U										

Vertical Glazing Schedule										Rows to Show	3
Plan ID	Component Description	Ref.	Glazing U	Qt.	Width		Height		Area	UA	
Exempt					Feet	Inch	Feet	Inch			
			-						-	-	
1	2	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	6	0	36.0	10.80
2	4	U=0.30 (Code Baseline)	Table 406.2	0.30	1	2	6	3	0	7.5	2.25
3	7	U=0.30 (Code Baseline)	Table 406.2	0.30	3	5	0	4	6	67.5	20.25
Sum of Area and UA									111.0	33.3	
Vertical Glazing Area Weighted U										0.300	
Vertical Glazing and Doors Area Weighted U										0.300	

Flat/Vaulted Ceilings						
Plan ID	Component Description	Ref.	Attic U		Area	UA
	R49 blown Attic STD baffled	10-7	0.027		819	22.1
Sum of Area and UA					819	22.1

Walls (Above Grade)						
Plan ID	Component Description	Ref.	Wall U		Net Area	UA
	R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,209	65
Sum of Area and UA					1,209	65

Floor (over crawl or exterior)						
Plan ID	Component Description	Ref.	Floor U		Area	UA
	No floors in thermal envelope	NA	-			0
Sum of Area and UA					0	0

Slab on Grade (less than 2 feet below grade)						
Plan ID	Component Description	Ref.	Slab F		Slab Perim	FP
	No slab on grade	NA	-			0
Sum of Perimeter and FP					0	0

Below Grade Walls and Slabs								
Plan ID	Component Description	Ref.	Wall U	Wall Area	Wall UA	Slab F	Slab Perim	Slab UA
Sum of Area, Length and UA				0	0.0		0	0

Ventilation Requirements	
Number of Bedrooms	2
Run-Time Percent in Each 4-Hour Segment	100%
Is the system Balanced?	Balanced
Is the system Distributed?	Distributed
Ventilation Code Section	IMC, Section 403
Whole House Mechanical Ventilation Airflow Rate	55 CFM

HVAC Thermal Distribution System		Download RS-33 (2018) http://www.energy.wsu.edu/Documents/Duct%20Testing%20Standards%20
Is this a hydronic heating system?	No	
Location of Ducts	Unducted	
Location of Air Handler	Unconditioned Space	
Is Duct Testing Required? No		

Links to Download Forms, Checklists and Other Resources	Link
Compliance Certificate	Compliance Certificate Instructions
Insulation Certificate for Residential New Construction	Insulation Certificate
Duct Testing Affidavits	
	Existing Construction Affidavit Existing
	New Construction Affidavit New
Prescriptive Checklist for 2018 WSEC	Prescriptive Checklist
Alterations (Remodel) Worksheet	Worksheet

Heating System Sizing - Proposed Design		Try Out BetterBuiltNW's HVAC Sizing Tool: https://betterbuiltnw.com/resources/hvac-sizing-tool
Nearest Weather Station	Puyallup	
Indoor Design Temperature	70 F	
Outdoor Design Temperature	19 F	
Design Temperature Difference (ΔT)	51 F	
Conditioned Floor Area, Proposed Design	819 ft ²	
Conditioned Volume	6,962 ft ³	
Leave blank to use default of 8.5 ft. ceiling height		
HVAC System Type	Heat Pump	
Location of HVAC Distribution System	Unducted	
Sum of UA, including exempt door and window	133	
Envelope Heat Load	6,768 Btu / Hour	
Sum of UA X ΔT		
Air Leakage Heat Load	3,834 Btu / Hour	
((Volume X 0.6) X ΔT) X .018))		
Building Design Heat Load	10,602 Btu / Hour	
Air Leakage + Envelope Heat Loss		
Building and Duct Heat Load	10,602 Btu / Hour	
For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1		
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1		
Maximum Heat Equipment Output	13,252 Btu / Hour	
Building and Duct Heat Loss X 1.25 for heat pumps		
Building and Duct Heat Loss X 1.40 for all other systems		

Project Information
East Town Crossing Unit 304 Building A Pioneer & Shaw, Puyallup
Contact Information
Synthesis 9, LLC Brett Lindsay blindsay@synthesis9.com 253-468-4117

Messages / Results *
UA Reduction = 2.26, Proposed UA is better than baseline by 2%
Whole House Mechanical Ventilation Airflow Rate: 55 CFM with Run Time Percent of 100%, Balanced, Distributed
* Results assume your inputs are complete and correct. Results do not constitute an approval. Analysis should be reviewed by your AHJ.

ANALYSIS SET UP

What code compliance pathway are you using?	Prescriptive Path Compliance with Option 1 (preferred)
Project Building Type?	New Construction
Occupancy Type?	R2 Multifamily
Code Version?	WSEC 2018
Classification:	Small Dwelling Unit -- 819 sq. ft.
Baseline Description:	Code Baseline - Baseline and proposed window areas are equal.
About Your Selection:	Up to 15 sf exempt window and 24 sf exempt door allowable

RESULTS - Comparison of Baseline and Proposed Design

Component Performance, R occupancies				Proposed Design			
	U	Area	UA	U	Area	UA	
Doors U =	0.300	40	12.0	0.300	40	12.0	
Overhead Glazing U =	0.500	0	0.0		0	0.0	
Vertical Glazing U =	0.300	111	33.3	0.300	111	33.3	
Flat/Vaulted Ceilings U =	0.027	819	22.1	0.027	819	22.1	
Wall (above grade) U =	0.056	1,132	63.4	0.054	1,132	61.1	
Floors over Crawlspce U =	0.029	0	0.0		0	0.0	
Slab on Grade F =	0.540	0	0.0		0	0.0	
Below Grade Wall U =	0.042	0	0.0		0	0.0	
Below Grade Slab F =	0.570	0	0.0		0	0.0	
Baseline UA Total			130.8	Proposed UA Total			128.5
Required Credits			4.5	Proposed Credits			5.5 from Tables 406.2 and 406.3
				UA Percent Reduction			1.7%
				UA Reduction			2.3

If the Proposed UA ≤ the Target UA, and the Proposed Credits from Table 406 are ≥ those required in Section R406, then the home meets the WSEC.

Table R406.2 Fuel Normalization Credits

System No.	Full Description	Select System Type	Fuel Normalization Credits (406.2)	Energy Credits (406.3)	Total Credits (406.2 & 406.3)
2	For an initial heating system using a heat pump that meets federal standards for the equipment listed in Table C403.3.2(1)C or C403.3.2(2) OR Air to water heat pump units that are configured to provide both heating and cooling and are rated in accordance with AHRI 550/590. Heat pump with electric resistance or fossil-fuel supplemental heat requires compliance with WSEC 403.1.2 "Heat Pump Supplementary Heat". Packaged Terminal Heat Pumps (PTAC-HP) requires an HSPF tested value (See SBC Interpretation dated December 2020).	Heat Pump, air-to-air or air to water	1.0	4.5	5.5

Table R406.3 Energy Credits

Option No.	Category	Select Options	Energy Credits	Brief Description of Selected Options*
1	Efficient Building Envelope		0.0	
2	Air Leakage Control and Efficient Ventilation		0.0	
3	High Efficiency HVAC	Option 3.4	2.0	Ductless Split System, Zonal Control. Min HSPF of 10.
4	High Efficiency HVAC Distribution System		NA	
5.1	Efficient Water Heating		0.0	
5.2-5.6	Efficient Water Heating	Option 5.5	2.5	NEEA Tier 3 heat pump water heater
6	Renewable Electric Energy		0.0	
7	Appliance Package		0.0	
Energy Credits			4.5	

*Refer to WSEC 2018 Table R406.3 for complete option descriptions and requirements

THERMAL ENVELOPE DETAILS - Proposed Design

[illegible]

Overhead Glazing										
Plan ID	Component Description	Ref.	Glazing U	Qt.	Width		Height		Area	UA
					Feet	Inch	Feet	Inch		
									0	
									0	
									0	
									0	
									0	
									0	
Sum of Area and UA									0	0
Overhead Glazing Area Weighted U										

Vertical Glazing Schedule										Rows to Show	3
Plan ID	Component Description	Ref.	Glazing U	Qt.	Width		Height		Area	UA	
Exempt					Feet	Inch	Feet	Inch			
			-						-	-	
1	2	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	6	0	36.0	10.80
2	4	U=0.30 (Code Baseline)	Table 406.2	0.30	1	2	6	3	0	7.5	2.25
3	7	U=0.30 (Code Baseline)	Table 406.2	0.30	3	5	0	4	6	67.5	20.25
Sum of Area and UA									111.0	33.3	
Vertical Glazing Area Weighted U										0.300	
Vertical Glazing and Doors Area Weighted U										0.300	

Flat/Vaulted Ceilings						
Plan ID	Component Description	Ref.	Attic U		Area	UA
	R49 blown Attic STD baffled	10-7	0.027		819	22.1
Sum of Area and UA					819	22.1

Walls (Above Grade)						
Plan ID	Component Description	Ref.	Wall U		Net Area	UA
	R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,132	61
Sum of Area and UA					1,132	61

Floor (over crawl or exterior)						
Plan ID	Component Description	Ref.	Floor U		Area	UA
	No floors in thermal envelope	NA	-			0
Sum of Area and UA					0	0

Slab on Grade (less than 2 feet below grade)						
Plan ID	Component Description	Ref.	Slab F		Slab Perim	FP
	No slab on grade	NA	-			0
Sum of Perimeter and FP					0	0

Below Grade Walls and Slabs								
Plan ID	Component Description	Ref.	Wall U	Wall Area	Wall UA	Slab F	Slab Perim	Slab UA
Sum of Area, Length and UA				0	0.0		0	0

Ventilation Requirements	
Number of Bedrooms	2
Run-Time Percent in Each 4-Hour Segment	100%
Is the system Balanced?	Balanced
Is the system Distributed?	Distributed
Ventilation Code Section	IMC, Section 403
Whole House Mechanical Ventilation Airflow Rate	55 CFM

HVAC Thermal Distribution System		Download RS-33 (2018) http://www.energy.wsu.edu/Documents/Duct%20Testing%20Standards%20
Is this a hydronic heating system?	No	
Location of Ducts	Unducted	
Location of Air Handler	Unconditioned Space	
Is Duct Testing Required? No		

Links to Download Forms, Checklists and Other Resources	Link
Compliance Certificate	Compliance Certificate Instructions
Insulation Certificate for Residential New Construction	Insulation Certificate
Duct Testing Affidavits	
	Existing Construction Affidavit Existing
	New Construction Affidavit New
Prescriptive Checklist for 2018 WSEC	Prescriptive Checklist
Alterations (Remodel) Worksheet	Worksheet

Heating System Sizing - Proposed Design		Try Out BetterBuiltNW's HVAC Sizing Tool: https://betterbuiltnw.com/resources/hvac-sizing-tool
Nearest Weather Station	Puyallup	
Indoor Design Temperature	70 F	
Outdoor Design Temperature	19 F	
Design Temperature Difference (ΔT)	51 F	
Conditioned Floor Area, Proposed Design	819 ft ²	
Conditioned Volume	6,962 ft ³	
Leave blank to use default of 8.5 ft. ceiling height		
HVAC System Type	Heat Pump	
Location of HVAC Distribution System	Unducted	
Sum of UA, including exempt door and window	129	
Envelope Heat Load	6,555 Btu / Hour	
Sum of UA X ΔT		
Air Leakage Heat Load	3,834 Btu / Hour	
((Volume X 0.6) X ΔT) X .018))		
Building Design Heat Load	10,389 Btu / Hour	
Air Leakage + Envelope Heat Loss		
Building and Duct Heat Load	10,389 Btu / Hour	
For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1		
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1		
Maximum Heat Equipment Output	12,986 Btu / Hour	
Building and Duct Heat Loss X 1.25 for heat pumps		
Building and Duct Heat Loss X 1.40 for all other systems		