PRMU20240402

Project Information		Messages / Results *	
East Town Crossing Unit 101	REVIEWED FOR		City of Puyallup
Building E	COMPLIANCE bsnowden		Development & Permitting Services
Pioneer & Shaw, Puyallup	03/03/2025 10:36:15 AM	UA Reduction = 2.6, Proposed UA is better than baseline by 1%	Building Planning Engineering Public Works
Contact Information	ST OF PUTAILES		Fire Traffic
Synthesis 9, LLC			
Brett Lindsay			
blindsay@synthesis9.com		Whole House Mechanical Ventilation Airflow Rate: 70 CFM with Run Time Percent of 100%, Balance	ed, Distributed
253-468-4117			
	-	* Results assume your inputs are complete and correct. Results do not constitute an approval. Analysis should be reviewed by you	ur AHJ.

ALYSIS SET UP

 What code compliance pathway are you using?
 Prescriptive Path Compliance with Option 1 (preferred)
 Project Building Type? New Construction Occupancy Type? Code Version? WSEC 2018

R2 Multifamily Classification: Small Dwelling Unit -- 1150 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

Component Performance, R occupancies		Baseline			P	roposed Desig	jn 🛛
	U	Area	UA		U	Area	UA
Doors U =	0.300	40	12.0	Γ	0.300	40	12.0
Overhead Glazing U =	0.500	0	0.0			0	0.0
Vertical Glazing U =	0.300	158	47.3		0.300	158	47.3
Flat/Vaulted Ceilings U =	0.027	0	0.0			0	0.0
Wall (above grade) U =	0.056	1,299	72.8		0.054	1,299	70.2
Floors over Crawlspace U =	0.029	0	0.0			0	0.0
Slab on Grade F =	0.540	148	80.0		0.540	148	80.0
Below Grade Wall U =	0.042	0	0.0			0	0.0
Below Grade Slab F =	0.570	0	0.0			0	0.0
		_					
	Baseli	ne UA Total	212.0		Prop	osed UA Total	209.4
	Requ	ired Credits	4.5		Prop	osed Credits	7.0
					UA Perce	ent Reduction	1.2%
						UA Reduction	2.6

Table R	406.2 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	6.0	7.0

Table R4	06.3 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	Option 2.2	1.5	2.0 ACH50 / Heat Recovery Ventilation min eff 65% / For R2, 0.25 cfm per ft2 at 50 Pa / HRV with min SHR eff of 0.65
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 kWh		0.0	
7	Appliance Package		0.0	
		Energy Credits	6.0	

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

Conditioned Floor Area, Proposed Design	n 1,150 sq. ft
Classification	n Small Dwelling Unit
Notes	s

Exterior	Doors									
Plan	Component		Door		Wio	dth	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt									0	0.0
101A	Code Baseline, U=0.30	-	0.30	1	3	0	6	8	20	6.0
101B	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
						Sum	of Area	a and UA	40	12.0
					Exterior	r Doors A	Area We	ighted U		0.300

Overhea	d Glazing										
Plan	Component		Glazing		Wie	dth	He	eight			
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA	
									0		
									0		
									0		
									0		
									0		
						Sum	of Are	a and UA	0	0	D
Overhead Glazing Area Weighted U											

Plan	Component		Glazing		Wid	lth	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt			-						-	-
1	U=0.30 (Code Baseline)	Table 406.2	0.30	3	6	0	5	0	90.0	27.00
2	U=0.30 (Code Baseline)	Table 406.2	0.30	2	3	0	5	0	30.0	9.00
4	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	5	0	30.0	9.00
5	U=0.30 (Code Baseline)	Table 406.2	0.30	1	2	6	3	0	7.5	2.25
Sum of Area and UA 157.										47.3
					Vertical C	Glazing A	rea We	ighted U		0.300
				Vertical G	lazing and	Doors A	rea We	iahted U		0.300

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

Plan	Component		Wall			
ID	Description	Ref.	U		Net Area	UA
	R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,299	70
				Sum of Area and UA	1,299	70

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

Slab on Grade (less than 2 feet below grade)									
Plan	Component		Slab						
ID	Description	Ref.	F		Slab Perim	FP			
	R10 2' vertical (Code Baseline)	10-2	0.540		148	80	0		
	·	148	80	0					

Below Gr	ade Walls and Slabs								
Plan	Component		Wall	Wall	Wall	Slab		Slab	
ID	Description	Ref.	U	Area	UA	F	Slab Perim	UA	
	Sum	of Area, Ler	gth and UA	0	0.0		0	0	

Ventilation Requirements	
Number of Bedrooms	3
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	70 CFM

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

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

Heating System Sizing - Proposed Design Try C	Dut 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 (∆T)	51 F
Conditioned Floor Area, Proposed Design	1,150 ft2
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	9,775 ft3
HVAC System Type	Heat Pump
Location of HVAC Distribution System	Unducted
Location of https://www.oystein	
Sum of UA, including exempt door and window	209
Envelope Heat Load Sum of UA X AT	10,682 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	5,384 Btu / Hour
Building Design Heat Load Air Leakage + Envelope Heat Loss	16,066 Btu / Hour
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	16,066 Btu / Hour
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1	
Maximum Heat Equipment Output Building and Duct Heat Loss X 1.25 for heat pumps	20,082 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	

Project Information	Messages / Results *
East Town Crossing Unit 102	
Building E	
Pioneer & Shaw, Puyallup	UA Reduction = 2.73, Proposed UA is better than baseline by 1%
Contact Information	
Synthesis 9, LLC	
Brett Lindsay	
blindsay@synthesis9.com	Whole House Mechanical Ventilation Airflow Rate: 70 CFM with Run Time Percent of 100%, Balanced, Distributed
253-468-4117	
	* 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 -- 1075 sq. ft. Baseline Description: Code Baseline - Baseline and proposed window areas are equal. Up to 15 sf exempt window and 24 sf exempt door allowable Up to 15 sf exempt window and 24 sf exempt door allowable

Component Performance, R occupancies		Baseline		Pr	oposed Desig	jn	
	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	135	40.5	0.300	135	40.5	
Flat/Vaulted Ceilings U =	0.027	0	0.0		0	0.0	
Wall (above grade) U =	0.056	1,364	76.4	0.054	1,364	73.6	
Floors over Crawlspace U =	0.029	0	0.0		0	0.0	
Slab on Grade F =	0.540	152	82.3	0.540	152	82.3	
Below Grade Wall U =	0.042	0	0.0		0	0.0	
Below Grade Slab F =	0.570	0	0.0		0	0.0	
		_					
	Baseli	ne UA Total	211.1	Propo	osed UA Total	208.4	
	Requi	ired Credits	4.5	Prop	osed Credits	7.0 f	rom Tables 406.2 and 40
				UA Perce	ent Reduction	1.3%	
				ı	JA Reduction	2.7	

Table R	406.2 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	6.0	7.0

Table R4	06.3 Energy Credits					
Option No.	1 Efficient Building Envelope 2 Air Leakage Control and Efficient Ventilation 3 High Efficiency HVAC 4 High Efficiency HVAC Distribution System 5.1 Efficient Water Heating 5.2-5.6 Efficient Water Heating	o. Category Se		Select Options	Energy Credits	Brief Description of Selected Options*
1	On No. Category 1 Efficient Building Envelope 2 Air Leakage Control and Efficient Ventilation 3 High Efficiency HVAC 4 High Efficiency HVAC Distribution System 5.1 Efficient Water Heating 2-5.6 Efficient Water Heating 6 Renewable Electric Energy			0.0		
2	Air Leakage Control and Efficient Ventilation			Option 2.2	1.5	2.0 ACH50 / Heat Recovery Ventilation min eff 65% / For R2, 0.25 cfm per ft2 at 50 Pa / HRV with min SHR eff of 0.65
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	kWI	'n		0.0	
7	Appliance Package				0.0	
				Energy Credits	6.0	

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

Conditioned Floor Area, Proposed Design	1,075 sq. ft
Classification	n Small Dwelling Unit
Notes	5

Exterior	Doors									
Plan	Component		Door		Wio	ith	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
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
						Sum	of Area	a and UA	40	12.0
					Exterior	Doors A	rea We	ighted U		0.300

Overhe	ad Glazing										
Plan	Component		Glazing		Wie	dth	He	eight			
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA	
									0		
									0		
									0		
									0		
									0		
						Sum	of Are	a and UA	0	C	0
				C	Overhead	Glazing A	Area We	eighted U			

Plan	Glazing Schedule Component		Glazing		Wio	dth	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt			-						-	-
1	U=0.30 (Code Baseline)	Table 406.2	0.30	3	6	0	5	0	90.0	27.00
2	U=0.30 (Code Baseline)	Table 406.2	0.30	1	3	0	5	0	15.0	4.50
4	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	5	0	30.0	9.00
Sum of Area and UA 135.0						40.5				
Vertical Glazing Area Weighted U						0.300				
				Vertical G	lazing and	Doors A	rea We	ighted U		0.300

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

v	Walls (Above Grade)							
	Plan	Component		Wall				
	ID	Description	Ref.	U		Net Area	UA	
		R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,364	74	ŧ
Γ								
								1
					Sum of Area and UA	1,364	74	1

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

;	Slab on Grade (less than 2 feet below grade)							
	Plan	Component		Slab				
	ID	Description	Ref.	F		Slab Perim	FP	
		R10 2' vertical (Code Baseline)	10-2	0.540		152	82	
			•		Sum of Perimeter and FP	152	82	

E	Below Gr	ade Walls and Slabs								
	Plan	Component		Wall	Wall	Wall	Slab		Slab	
	ID	Description	Ref.	U	Area	UA	F	Slab Perim	UA	
										1
-	Sum of Area, Length and UA					0.0		0	0)

Ventilation Requirements	
Number of Bedrooms	3
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	70 CFM

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

Compliance Certificate Compliance Certificate Instructions Insulation Certificate for Residential New Construction Insulation Certificate Insulation Certificate Duct Testing Affadavits Extra Certificate Extra Certificate Insulation
Duct Testing Affadavits
•
Existing Construction Affidavit, Existing
New Construction Affidavit, New
Prescriptive Checklist for 2018 WSEC Prescriptive Checklist
Alterations (Remodel) Worksheet Worksheet

Heating System Sizing - Proposed Design	y Out BetterBuiltNW's HVAC Sizing Tool: https://be	tterbuiltnw.com/resources/hvac-sizing-tool
Nearest Weather Station	Puyallup	
Indoor Design Temperature	70 F	
Outdoor Design Temperature	19 F	
Design Temperature Difference (∆T)	51 F	
Conditioned Floor Area, Proposed Design	1,075 ft2	
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	9,138 ft3	
HVAC System Type	Heat Pump]
Location of HVAC Distribution System	Unducted	-
Sum of UA, including exempt door and window	208	
Envelope Heat Load Sum of UA X ∆T	10,628 Btu / Hour	
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X.018))	5,033 Btu / Hour	
Building Design Heat Load Air Leakage + Envelope Heat Loss	15,661 Btu / Hour	
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	15,661 Btu / Hour	
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1		
Maximum Heat Equipment Output Building and Duct Heat Loss X 1.25 for heat pumps Building and Duct Heat Loss X 1.40 for all other systems	19,576 Btu / Hour	
Equiding and Duct field Loss A 1.40 for an other systems		

Project Information	Messages / Results *
East Town Crossing Unit 103	
Building E	
Pioneer & Shaw, Puyallup	UA Reduction = 2.58, Proposed UA is better than baseline by 1%
Contact Information	
Synthesis 9, LLC	
Brett Lindsay	
blindsay@synthesis9.com	Whole House Mechanical Ventilation Airflow Rate: 70 CFM with Run Time Percent of 100%, Balanced, Distributed
253-468-4117	
	* 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? Occupancy Type? Code Version? WSEC 2018

New Construction R2 Multifamily Classification: Small Dwelling Unit -- 1055 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

Component Performance, R occupancies		Baseline			Pre	oposed Desig	n	
	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	90	27.0	(0.300	90	27.0	
Flat/Vaulted Ceilings U =	0.027	0	0.0			0	0.0	
Wall (above grade) U =	0.056	1,291	72.3	(0.054	1,291	69.7	
Floors over Crawlspace U =	0.029	0	0.0			0	0.0	
Slab on Grade F =	0.540	141	76.0	(0.540	141	76.0	
Below Grade Wall U =	0.042	0	0.0			0	0.0	
Below Grade Slab F =	0.570	0	0.0			0	0.0	
		_						
	Baseli	ne UA Total	187.2		Propo	sed UA Total	184.7	
	Requi	ired Credits	4.5		Prop	osed Credits	7.0	from Tables 406.2 and 4
					UA Perce	nt Reduction	1.4%	
					1	A Reduction	2.6	

Table R4	06.2 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	6.0	7.0

Table R4	106.3 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			Option 2.2	1.5	2.0 ACH50 / Heat Recovery Ventilation min eff 65% $$ / For R2, 0.25 cfm per ft2 at 50 Pa / HRV with min SHR eff of 0.65 $$
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	ł	kWh		0.0	
7	Appliance Package				0.0	
				Energy Credits	6.0	

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

Conditioned Floor Area, Proposed Design	1,055 sq. ft
Classification S	Small Dwelling Unit
Notes	

Exterior	Doors									
Plan	Component		Door		Wio	ith	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt									0	0.0
103A	Code Baseline, U=0.30	-	0.30	1	3	0	6	8	20	6.0
103B	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
						Sum	of Are	a and UA	40	12.0
					Exterior	Doors A	Area We	ighted U		0.300

Overhea	d Glazing	•					•			
Plan	Component		Glazing		Wie	dth	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
									0	
									0	
									0	
									0	
									0	
						Sum	of Are	a and UA	0	0
				c	verhead	Glazing A	Area We	ighted U		

Vertical Glazing Schedule Rows to Show 2										
Plan	Plan Component Glazing Width Height									
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt			-						-	-
1	U=0.30 (Code Baseline)	Table 406.2	0.30	2	6	0	5	0	60.0	18.00
3	U=0.30 (Code Baseline)	Table 406.2	0.30	1	5	0	6	0	30.0	9.00
Sum of Area and UA 90.0										27.0
					Vertical	Glazing (area We	II hatdnia		0 300

Vertical Glazing and Doors Area Weighted U

0.300

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

	Walls (Ab	ove Grade)						
	Plan	Component		Wall				
	ID	Description	Ref.	U		Net Area	UA	
		R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,291	70	
Ī								
ľ								
					Sum of Area and UA	1,291	70	

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

Slab on G	rade (less than 2 feet below grade)						
Plan	Component		Slab				
ID	Description	Ref.	F		Slab Perim	FP	
	R10 2' vertical (Code Baseline)	10-2	0.540		141	76	
				Sum of Perimeter and FP	141	76	

Below Gr	ade Walls and Slabs								
Plan	Component		Wall	Wall	Wall	Slab		Slab	
ID	Description	Ref.	U	Area	UA	F	Slab Perim	UA	
	Sum	of Area, Ler	ngth and UA	0	0.0		0	0	

Ventilation Requirements	
Number of Bedrooms	2
Run-Time Percent in Each 4-Hour Segment	it <u>100%</u>
Is the system Balanced?	Palanced Verify system meets definition of 'Balanced Whole-House Ventilation'
Is the system Distributed?	? Distributed Whole-House Ventilation'
Ventilation Code Section	n IMC, Section 403
Whole House Mechanical Ventilation Airflow Rate	e 70 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 Affadavits		
Existing Construction	Affidavit, Existing	
New Construction	Affidavit, New	
Prescriptive Checklist for 2018 WSEC	Prescriptive Checklist	
Alterations (Remodel) Worksheet	Worksheet	

Heating System Sizing - Proposed Design	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	1,055 ft2
Conditioned Volume	8,968 ft3
Leave blank to use default of 8.5 ft. ceiling height	8,960 III 3
HVAC System Type	Heat Pump
Location of HVAC Distribution System	Unducted
Sum of UA, including exempt door and window	185
Envelope Heat Load	9,417 Btu / Hour
Sum of UA X ΔT	
Air Leakage Heat Load	4,939 Btu / Hour
((Volume X 0.6) X ∆T) X .018))	
Building Design Heat Load	14,357 Btu / Hour
Air Leakage + Envelope Heat Loss	
Building and Duct Heat Load	14,357 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	17,946 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	Messages / Results *
East Town Crossing Unit 104	
Building E	
Pioneer & Shaw, Puyallup	UA Reduction = 2.44, Proposed UA is better than baseline by 1%
Contact Information	
Synthesis 9, LLC	
Brett Lindsay	
blindsay@synthesis9.com	Whole House Mechanical Ventilation Airflow Rate: 55 CFM with Run Time Percent of 100%, Balanced, Distributed
253-468-4117	
	* 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 -- 986 sq. ft. Baseline Description: Code Baseline - Baseline and proposed window areas are equal. Up to 15 sf exempt window and 24 sf exempt door allowable

Component Performance, R occupancies		Baseline		Pi	roposed Desig	jn	
	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	180	54.0	0.300	180	54.0	
Flat/Vaulted Ceilings U =	0.027	0	0.0		0	0.0	
Wall (above grade) U =	0.056	1,222	68.4	0.054	1,222	66.0	
Floors over Crawlspace U =	0.029	0	0.0		0	0.0	
Slab on Grade F =	0.540	143	77.1	0.540	143	77.1	
Below Grade Wall U =	0.042	0	0.0		0	0.0	
Below Grade Slab F =	0.570	0	0.0		0	0.0	
		_					
	Baselir	ne UA Total	211.6	Propo	osed UA Total	209.1	
	Requi	red Credits	4.5	Prop	osed Credits	7.0 _f	from Tables 406.2 and 406
				UA Perce	ent Reduction	1.2%	
					UA Reduction	2.4	

Table R	406.2 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	6.0	7.0

Table R4	06.3 Energy Credits					
Option No.	Category	iegory			Energy Credits	Brief Description of Selected Options*
1	Efficient Building Envelope				0.0	
2	Air Leakage Control and Efficient Ventilation				1.5	2.0 ACH50 / Heat Recovery Ventilation min eff 65% / For R2, 0.25 cfm per ft2 at 50 Pa / HRV with min SHR eff of 0.65
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	kWI	'n		0.0	
7	Appliance Package				0.0	
				Energy Credits	6.0	

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

Conditioned Floor Area, Proposed Design	n 986 sq. ft
Classification Sm	n Small Dwelling Unit
Notes	is

Exterior	Doors									
Plan	Component		Door		Wio	ith	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt									0	0.0
104A	Code Baseline, U=0.30	-	0.30	1	3	0	6	8	20	6.0
104B	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
						Sum	of Area	a and UA	40	12.0
					Exterior	Doors A	Area We	ighted U		0.300

Overhea	d Glazing										
Plan	Component		Glazing		Wie	dth	He	eight			Г
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA	
									0		
									0		
									0		
									0		
									0		
						Sum	of Are	a and UA	0	0	D
				c	Overhead	Glazing A	Area We	ighted U			

Plan	Vertical Glazing Schedule Plan Component Glazing Width Heir					eight		U C		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt			-						-	-
1	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	5	0	30.0	9.00
2	U=0.30 (Code Baseline)	Table 406.2	0.30	2	3	0	5	0	30.0	9.00
4	U=0.30 (Code Baseline)	Table 406.2	0.30	4	6	0	5	0	120.0	36.00
						Sum	of Area	a and UA	180.0	54.0
					Vertical 0	Glazing A	rea We	ighted U		0.300
				Vertical G	lazing and	Doors A	rea We	ighted U		0.300

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

	Walls (Ab	ove Grade)						
	Plan	Component		Wall				
	ID	Description	Ref.	U		Net Area	UA	
		R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,222	66	;
ſ								
ľ								1
					Sum of Area and UA	1,222	66	

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

s	Slab on G	irade (less than 2 feet below grade)						
	Plan	Component		Slab				
	ID	Description	Ref.	F		Slab Perim	FP	
		R10 2' vertical (Code Baseline)	10-2	0.540		143	77	
i T								
i T								
					Sum of Perimeter and FP	143	77	

Below Gr	ade Walls and Slabs								
Plan	Component		Wall	Wall	Wall	Slab		Slab	
ID	Description	Ref.	U	Area	UA	F	Slab Perim	UA	
	Sum	ngth 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.ene	rgy.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 De	ct 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 Affadavits		
Existing Construct	ction Affidavit, Existing	
New Construct	ction 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 (∆T)	51 F	
Conditioned Floor Area, Proposed Design	986 ft2	
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	8,381 ft3	
HVAC System Type	Heat Pump	
Location of HVAC Distribution System	Unducted	
Sum of UA, including exempt door and window	209	
Envelope Heat Load Sum of UA X ΔT	10,665 Btu / Hour	
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	4,616 Btu / Hour	
Building Design Heat Load Air Leakage + Envelope Heat Loss	15,281 Btu / Hour	
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	15,281 Btu / Hour	
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1		
Maximum Heat Equipment Output Building and Duct Heat Loss X 1.25 for heat pumps	19,101 Btu / Hour	
Building and Duct Heat Loss X 1.40 for all other systems		

Project Information	Messages / Results *
East Town Crossing Unit 105	
Building E	
Pioneer & Shaw, Puyallup	UA Reduction = 2.58, Proposed UA is better than baseline by 1%
Contact Information	
Synthesis 9, LLC	
Brett Lindsay	
blindsay@synthesis9.com	Whole House Mechanical Ventilation Airflow Rate: 70 CFM with Run Time Percent of 100%, Balanced, Distributed
253-468-4117	
	* 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? Occupancy Type? Code Version? WSEC 2018

New Construction R2 Multifamily Classification: Small Dwelling Unit -- 1055 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

Component Performance, R occupancies		Baseline			Pr	oposed Desig	in	
component renormance, R occupancies	U	Area	UA		U	Area	UA	
Doors U =	0.300	40	12.0	Г	0.300	40		
Overhead Glazing U =	0.500	0	0.0			0	0.0	
Vertical Glazing U =	0.300	90	27.0		0.300	90	27.0	
Flat/Vaulted Ceilings U =	0.027	0	0.0			0	0.0	
Wall (above grade) U =	0.056	1,291	72.3		0.054	1,291	69.7	
Floors over Crawlspace U =	0.029	0	0.0			0	0.0	
Slab on Grade F =	0.540	141	76.0		0.540	141	76.0	
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 187.2 Proposed UA Total							184.7	
	4.5		Proposed Credits			from Tables 406.2 and 40		
AU							1.4%	
					ι	JA Reduction	2.6	

are ≥ those required in Section R406, then the hor If the Propo Targe Propo

Table R4	06.2 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	6.0	7.0

Table R4	106.3 Energy Credits					
Option No.	Category			Select Options	Energy Credits	Brief Description of Selected Options*
1	Efficient Building Envelope				0.0	
2	2 Air Leakage Control and Efficient Ventilation			Option 2.2	1.5	2.0 ACH50 / Heat Recovery Ventilation min eff 65% $$ / For R2, 0.25 cfm per ft2 at 50 Pa / HRV with min SHR eff of 0.65 $$
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	kWh		0.0		
7	Appliance Package			0.0		
				Energy Credits	6.0	

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

Conditioned Floor Area, Proposed Design	n 1,055 sq. ft
Classification S	n Small Dwelling Unit
Notes	s

Exterior	Doors									
Plan	Component		Door		Wio	dth	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt									0	0.0
105A	Code Baseline, U=0.30	-	0.30	1	3	0	6	8	20	6.0
105B	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
						Sum	of Are	a and UA	40	12.0
					Exterior	r Doors A	Area We	ighted U		0.300

Ov	erhead	d Glazing										
F	Plan	Component		Glazing		Wie	ith	He	eight			
	ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA	
										0		
										0		
										0		
										0		
										0		
Sum of Area and UA 0 0												
Overhead Glazing Area Weighte									ighted U			

Vertical	I Glazing Schedule							Ro	ws to Show	2
Plan	Plan Component Glazing Width Height									
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt	t		-						-	-
1	U=0.30 (Code Baseline)	Table 406.2	0.30	2	6	0	5	0	60.0	18.00
3	U=0.30 (Code Baseline)	Table 406.2	0.30	1	5	0	6	0	30.0	9.00
Sum of Area and UA 90.0										27.0
					Vertical (Glazing A	area We	inhted II		0 300

Vertical Glazing Area Weighted U Vertical Glazing and Doors Area Weighted U

0.300

lat/Vaul	ted Ceilings		1			
Plan	Component		Attic			
ID	Description	Ref.	U		Area	UA
	No ceiling/roof in thermal envelope	NA	-			0.0
				Sum of Area and UA	0	0.0

Walls (Ab	pove Grade)						
Plan	Component		Wall				
ID	Description	Ref.	U		Net Area	UA	
	R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,291	70	
	·			Sum of Area and UA	1,291	70	

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

Slab on G	rade (less than 2 feet below grade)						
Plan	Component		Slab				
ID	Description	Ref.	F		Slab Perim	FP	
	R10 2' vertical (Code Baseline)	10-2	0.540		141	76	
				Sum of Perimeter and FP	141	76	

Below Gr	ade Walls and Slabs								
Plan	Component		Wall	Wall	Wall	Slab		Slab	
ID	Description	Ref.	U	Area	UA	F	Slab Perim	UA	
	Sum	of Area, Ler	ngth and UA	0	0.0		0	0	

Ventilation Requirements	
Number of Bedrooms	2
Run-Time Percent in Each 4-Hour Segment	it <u>100%</u>
Is the system Balanced?	Palanced Verify system meets definition of 'Balanced Whole-House Ventilation'
Is the system Distributed?	? Distributed Whole-House Ventilation'
Ventilation Code Section	n IMC, Section 403
Whole House Mechanical Ventilation Airflow Rate	e 70 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 Affadavits		
Existing Construction	Affidavit, Existing	
New Construction	Affidavit, New	
Prescriptive Checklist for 2018 WSEC	Prescriptive Checklist	
Alterations (Remodel) Worksheet	Worksheet	

Heating System Sizing - Proposed Design	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	1,055 ft2
Conditioned Volume	8,968 ft3
Leave blank to use default of 8.5 ft. ceiling height	8,960 III 3
HVAC System Type	Heat Pump
Location of HVAC Distribution System	Unducted
Sum of UA, including exempt door and window	185
Envelope Heat Load	9,417 Btu / Hour
Sum of UA X ΔT	
Air Leakage Heat Load	4,939 Btu / Hour
((Volume X 0.6) X ∆T) X .018))	
Building Design Heat Load	14,357 Btu / Hour
Air Leakage + Envelope Heat Loss	
Building and Duct Heat Load	14,357 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	17,946 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	Messages / Results *
East Town Crossing Unit 106	
Building E	
Pioneer & Shaw, Puyallup	UA Reduction = 2.62, Proposed UA is better than baseline by 1%
Contact Information	
Synthesis 9, LLC	
Brett Lindsay	
blindsay@synthesis9.com	Whole House Mechanical Ventilation Airflow Rate: 55 CFM with Run Time Percent of 100%, Balanced, Distributed
253-468-4117	
	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? Occupancy Type? Code Version? WSEC 2018

New Construction R2 Multifamily Classification: Small Dwelling Unit -- 986 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

Component Performance, R occupancies		Baseline			Pro	posed Desig	In	
	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	90	27.0	(0.300	90	27.0	
Flat/Vaulted Ceilings U =	0.027	0	0.0			0	0.0	
Wall (above grade) U =	0.056	1,312	73.5	(0.054	1,312	70.9	
Floors over Crawlspace U =	0.029	0	0.0			0	0.0	
Slab on Grade F =	0.540	143	77.1	(0.540	143		
Below Grade Wall U =	0.042	0	0.0			0	0.0	
Below Grade Slab F =	0.570	0	0.0			0	0.0	
			100.0		_			
		ne UA Total	189.6		-	ed UA Total		
	Requ	ired Credits	4.5		Propo	sed Credits		rom Tables 406.2 and 40
					UA Percer	nt Reduction	1.4%	
					U.	A Reduction	2.6	

Table R4	106.2 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	6.0	7.0

Table R4	06.3 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		Option 2.2	1.5	2.0 ACH50 / Heat Recovery Ventilation min eff 65% / For R2, 0.25 cfm per ft2 at 50 Pa / HRV with min SHR eff of 0.65
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	kWh		0.0	
7	Appliance Package			0.0	
			Energy Credits	6.0	

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

Conditioned Floor Area, Proposed Design	gn 986 sq. ft	
Classification S	on Small Dwelling Unit	
Notes	es	

Exterior	Doors									
Plan	Component		Door		Wie	ith	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt									0	0.0
106A	Code Baseline, U=0.30	-	0.30	1	3	0	6	8	20	6.0
106B	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
						Sum	of Area	a and UA	40	12.0
					Exterio	r Doors A	rea We	ighted U		0.300

Overhea	d Glazing										
Plan	Component		Glazing		Wie	dth	He	eight			
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA	
									0		
									0		
									0		
									0		
									0		
						Sum	of Area	a and UA	0	0	
				c	Overhead	Glazing A	Area We	ighted U			

Vertical Glazing Schedule Rows to Show 3									3	
Plan	Component		Glazing		Wio	dth	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exem	pt		-						-	-
1 1	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	5	0	30.0	9.00
22	U=0.30 (Code Baseline)	Table 406.2	0.30	2	3	0	5	0	30.0	9.00
3 4	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	5	0	30.0	9.00
						Sum	of Area	a and UA	90.0	27.0
					Vertical (Glazing A	rea We	iahted U		0.300

ortical Glazing and Doors Area Weighted U

0.300

Vertical	Glazing	and Doors	Area	Weighted	U

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

Walls (Above Grade)							
Plan	Component		Wall				
ID	Description	Ref.	U		Net Area	UA	
	R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,312	71	
				Sum of Area and UA	1,312	71	

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

s	Slab on G	irade (less than 2 feet below grade)						
	Plan	Component		Slab				
	ID	Description	Ref.	F		Slab Perim	FP	
		R10 2' vertical (Code Baseline)	10-2	0.540		143	77	
i T								
i T								
					Sum of Perimeter and FP	143	77	

Below Grade Walls and Slabs									
Plan	Component		Wall	Wall	Wall	Slab		Slab	
ID	Description	Ref.	U	Area	UA	F	Slab Perim	UA	
	Sum	of Area, Ler	ngth 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%2							
Is this a hydronic heating system?	No							
Location of Ducts	Unducted							
Location of Air Handler	Unconditioned Space							
Is Duct	Is Duct Testing Required? No							

Compliance Certificate Compliance Certificate Instructions Insulation Certificate for Residential New Construction Insulation Certificate Insulation Certificate Duct Testing Affadavits Extra Certificate Extra Certificate Insulation
Duct Testing Affadavits
•
Existing Construction Affidavit, Existing
New Construction Affidavit, New
Prescriptive Checklist for 2018 WSEC Prescriptive Checklist
Alterations (Remodel) Worksheet Worksheet

Heating System Sizing - Proposed Design	out BetterBuiltNW's HVAC Sizing Tool: https://be	tterbuiltnw.com/resources/hvac-sizing-tool
Nearest Weather Station	Puyallup	
Indoor Design Temperature	70 F	
Outdoor Design Temperature	19 F	
Design Temperature Difference (∆T)	51 F	
Conditioned Floor Area, Proposed Design	986 ft2	
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	8,381 ft3	
HVAC System Type	Heat Pump	
Location of HVAC Distribution System	Unducted	-
Sum of UA, including exempt door and window	187	
Envelope Heat Load Sum of UA X ∆T	9,536 Btu / Hour	
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	4,616 Btu / Hour	
Building Design Heat Load Air Leakage + Envelope Heat Loss	14,152 Btu / Hour	
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	14,152 Btu / Hour	
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1		
Maximum Heat Equipment Output Building and Duct Heat Loss X 1.25 for heat pumps	17,690 Btu / Hour	
Building and Duct Heat Loss X 1.40 for all other systems		

Project Information	Messages / Results *
East Town Crossing Unit 107	
Building E	
Pioneer & Shaw, Puyallup	UA Reduction = 2.7, Proposed UA is better than baseline by 1%
Contact Information	
Synthesis 9, LLC	
Brett Lindsay	
blindsay@synthesis9.com	Whole House Mechanical Ventilation Airflow Rate: 70 CFM with Run Time Percent of 100%, Balanced, Distributed
253-468-4117	
	* 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 -- 1193 sq. ft. Baseline Description: Code Baseline - Baseline and proposed window areas are equal. Up to 15 sf exempt window and 24 sf exempt door allowable

RESULTS - Comparison of Baseline and Proposed Design Component Performance, R occupancies		Baseline			Pr	oposed Desig	an	
component renormance, reoccupancies	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	128	38.3		0.300	128	38.3	
Flat/Vaulted Ceilings U =	0.027	0	0.0			0	0.0	
Wall (above grade) U =	0.056	1,350	75.6		0.054	1,350	72.9	
Floors over Crawlspace U =	0.029	0	0.0			0	0.0	
Slab on Grade F =	0.540	150	81.1		0.540	150	81.1	
Below Grade Wall U =	0.042	0	0.0			0	0.0	
Below Grade Slab F =	0.570	0	0.0			0	0.0	
		-						
	Baseli	ne UA Total	206.9		Propo	sed UA Total	204.2	
	Requ	ired Credits	4.5		Prop	osed Credits		from Tables 406.2 and 406.3
					UA Perce	nt Reduction	1.3%	
					ι	JA Reduction	2.7	
If the Proposed UA ≤ the Target UA, and the Proposed Credits from Table 40	6 are ≥ thos	se required in	Section R40	6, then the home r	neets the WSE	5 .		

 Table R406.2 Fuel Normalization Credits

 System No.
 Fuel Normalization Credits

 Fuel Normalization Credits

 System No.
 Full Description
 Select System Type
 Fuel Normalization Credits (406.2)

System	o. Full Description	Select System Type	Credits (406.2)	Energy Credits (406.3)	& 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	6.0	7.0

Table R4	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		Option 2.2	1.5	2.0 ACH50 / Heat Recovery Ventilation min eff 65% / For R2, 0.25 cfm per ft2 at 50 Pa / HRV with min SHR eff of 0.65					
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	kWh		0.0						
7	Appliance Package			0.0						
			Energy Credits	6.0						

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

THERMAL ENVELOPE DETAILS - Proposed Design

Total Credits (406.2

Conditioned Floor Area, Proposed Design 1,193 sq. ft	
Classification Small Dwelling Unit	
Notes	

Exterior	Doors									
Plan	Component		Door		Wio	ith	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt									0	0.0
107A	Code Baseline, U=0.30	-	0.30	1	3	0	6	8	20	6.0
107B	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
						Sum	of Area	a and UA	40	12.0
					Exterior	Doors A	Area We	ighted U		0.300

Overhea	d Glazing										
Plan	Component		Glazing		Wie	ith	Н	eight			
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA	
									0		
									0		
									0		
									0		
									0		
						Sum	of Are	a and UA	0	0	D
				c	verhead (Glazing A	Area We	eighted U			

Plan	Component		Glazing		Wid	ith	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt			-						-	-
1	U=0.30 (Code Baseline)	Table 406.2	0.30	2	6	0	5	0	60.0	18.00
2	U=0.30 (Code Baseline)	Table 406.2	0.30	2	3	0	5	0	30.0	9.00
4	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	5	0	30.0	9.00
6	U=0.30 (Code Baseline)	Table 406.2	0.30	1	2	6	3	0	7.5	2.25
						Sum	of Area	a and UA	127.5	38.3
					Vertical C	Glazing A	rea We	ighted U		0.300
				Vertical G	lazing and	Doors A	rea We	iahted U		0.300

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

Plan	Component		Wall		
ID	Description	Ref.	U	Net Area	UA
	R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054	1,350	73

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

Slab on O	Grade (less than 2 feet below grade)						
Plan	Component		Slab				
ID	Description	Ref.	F		Slab Perim	FP	
	R10 2' vertical (Code Baseline)	10-2	0.540		150	81	1
				Sum of Perimeter and FP	150	81	1

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

Ventilation Requirements	
Number of Bedrooms	3
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	70 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 Require	ed? No	_

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

Heating System Sizing - Proposed Design Try C	Dut 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 (∆T)	51 F
Conditioned Floor Area, Proposed Design	1,193 ft2
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	10,141 ft3
HVAC System Type	Heat Pump
Location of HVAC Distribution System	Unducted
Sum of UA, including exempt door and window	204
Envelope Heat Load Sum of UA X ∆T	10,416 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	5,585 Btu / Hour
Building Design Heat Load Air Leakage + Envelope Heat Loss	16,001 Btu / Hour
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	16,001 Btu / Hour
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1	
Maximum Heat Equipment Output Building and Duct Heat Loss X 1.25 for heat pumps	20,002 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	

Project Information	Messages / Results *
East Town Crossing Unit 108	
Building E	
Pioneer & Shaw, Puyallup	UA Reduction = 2.6, Proposed UA is better than baseline by 1%
Contact Information	
Synthesis 9, LLC	
Brett Lindsay	
blindsay@synthesis9.com	Whole House Mechanical Ventilation Airflow Rate: 70 CFM with Run Time Percent of 100%, Balanced, Distributed
253-468-4117	
	* 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 R2 Multifamily Occupancy Type? Code Version? WSEC 2018 Classification: Small Dwelling Unit -- 1095 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

ULTS - Comparison of Baseline and Proposed Design								
Component Performance, R occupancies		Baseline				oposed Desig		
-	U	Area	UA		<u> </u>	Area	UA	
Doors U =	0.300	40	12.0		0.300	40	12.0	
Overhead Glazing U =	0.500	0	0.0			C	0.0	
Vertical Glazing U =	0.300	240	72.0		0.300	240	72.0	
Flat/Vaulted Ceilings U =	0.027	0	0.0			C	0.0	
Wall (above grade) U =	0.056	1,299	72.7		0.054	1,299	70.1	
Floors over Crawlspace U =	0.029	0	0.0			C	0.0	
Slab on Grade F =	0.540	156	84.4		0.540	156	84.4	
Below Grade Wall U =	0.042	0	0.0			C	0.0	
Below Grade Slab F =	0.570	0	0.0			C	0.0	
	Baseli	ne UA Total	241.2		Propo	sed UA Tota	238.6	
	Requ	ired Credits	4.5		Prop	osed Credits	7.0	from Tables 406.2 and 40
					UA Perce	nt Reduction	1.1%	
					ι	JA Reduction	2.6	
f the Proposed UA ≤ the Target UA, and the Proposed Credits from Table 40	6 are > thos	e required in	Section R40	6 then the home i	meets the WSE			

Table R4	406.2 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	6.0	7.0

Table R4	06.3 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			Option 2.2	1.5	2.0 ACH50 / Heat Recovery Ventilation min eff 65% / For R2, 0.25 cfm per ft2 at 50 Pa / HRV with min SHR eff of 0.65
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	kWh		0.0		
7	Appliance Package				0.0	
				Energy Credits	6.0	

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

Conditioned Floor Area, Proposed Design	1,095 sq. ft
Classification S	Small Dwelling Unit
Notes	

Exterior	Doors									
Plan	Component		Door		Wio	ith	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt									0	0.0
108A	Code Baseline, U=0.30	-	0.30	1	3	0	6	8	20	6.0
108B	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
						Sum	of Are	a and UA	40	12.0
					Exterior	Doors A	Area We	ighted U		0.300

Ov	erhead	d Glazing										
F	Plan	Component		Glazing		Wie	ith	He	eight			
	ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA	
										0		
										0		
										0		
										0		
										0		
_							Sum	of Are	a and UA	0	0	0
					c	verhead (Glazing A	Area We	ighted U			

	Vertical Glazing Schedule Rows to Show 2									2	
	Plan	Component		Glazing		Wio	ith	He	eight		
	ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
	Exempt			-						-	-
1	1	U=0.30 (Code Baseline)	Table 406.2	0.30	4	6	0	5	0	120.0	36.00
2	4	U=0.30 (Code Baseline)	Table 406.2	0.30	4	6	0	5	0	120.0	36.00
							Sum	of Are	a and UA	240.0	72.0
Vertical Glazing Area Weighted U										0.300	
					Vertical G	lazing and	Doors A	rea We	ighted U		0.300

ertical	Glazing	and	Doors	Area	Weighted L	J

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

Walls (Above Grade)										
PI	lan	Component		Wall						
I	D	Description	Ref.	U		Net Area	UA			
		R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,299	70			
					Sum of Area and UA	1,299	70			

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

Slab on Grade (less than 2 feet below grade)									
Plan	Component		Slab						
ID	Description	Ref.	F		Slab Perim	FP			
	R10 2' vertical (Code Baseline)	10-2	0.540		156	84			
	156	84							

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

Ventilation Requirements	
Number of Bedrooms	3
Run-Time Percent in Each 4-Hour Segment	t <u>100%</u>
Is the system Balanced?	Palanced Verify system meets definition of 'Balanced Whole-House Ventilation'
Is the system Distributed?	? Distributed Whole-House Ventilation'
Ventilation Code Section	n IMC, Section 403
Whole House Mechanical Ventilation Airflow Rate	e 70 CFM

HVAC Thermal Distribution System	Do	Download RS-33 (2018) http://www.energy.wsu.edu/Documents/Duct%20Testing%20Standards%							
Is this a hydronic heating system?	No								
Location of Ducts	Und	ducted							
Location of Air Handler	Unc	conditioned 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 Affadavits		
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 (∆T)	51 F
Conditioned Floor Area, Proposed Design	1,095_ft2
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	9,308 ft3
HVAC System Type	Heat Pump
Location of HVAC Distribution System	Unducted
Sum of UA, including exempt door and window	239
Envelope Heat Load Sum of UA X ΔT	12,167 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X.018))	5,127 Btu / Hour
Building Design Heat Load Air Leakage + Envelope Heat Loss	17,293 Btu / Hour
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	17,293 Btu / Hour
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1	
Maximum Heat Equipment Output Building and Duct Heat Loss X 1.25 for heat pumps	21,616 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	

Project Information	Messages / Results *
East Town Crossing Unit 201	
Building E	
Pioneer & Shaw, Puyallup	UA Reduction = 2.6, Proposed UA is better than baseline by 2%
Contact Information	
Synthesis 9, LLC	
Brett Lindsay	
blindsay@synthesis9.com	Whole House Mechanical Ventilation Airflow Rate: 70 CFM with Run Time Percent of 100%, Balanced, Distributed
253-468-4117	
	* 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 -- 1150 sq. ft. Code Baseline - Baseline and proposed window areas are equal. Up to 15 sf exempt window and 24 sf exempt door allowable

Component Performance, R occupancies		Baseline Prop					posed 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	158	47.3		0.300	158	47.3		
Flat/Vaulted Ceilings U =	0.027	0	0.0			0	0.0		
Wall (above grade) U =	0.056	1,299	72.8		0.054	1,299	70.2		
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		
	Baseli	ne UA Total	132.0		Propo	osed UA Total	129.4		
Required Credits 4.5					Prop	osed Credits	7.0 f	from Tables 406.2 and 40	
UA						ent Reduction	2.0%		
						JA Reduction	2.6		

Table R	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	6.0	7.0					

Table R4	406.3 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			Option 2.2	1.5	2.0 ACH50 / Heat Recovery Ventilation min eff 65% / For R2, 0.25 cfm per ft2 at 50 Pa / HRV with min SHR eff of 0.65
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	k	kWh		0.0	
7	Appliance Package				0.0	
				Energy Credits	6.0	

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

Conditioned Floor Area, Proposed Design	n 1,150 sq. ft
Classification	n Small Dwelling Unit
Notes	s

Exterior Doors											
Plan	Component		Door		Wio	ith	He	eight			
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	
						Sum	of Area	a and UA	40	12.0	
Exterior Doors Area Weighted U 0.300											

Overhead Glazing											
Plan	Component		Glazing		Wie	dth	He	eight			
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA	
									0		
									0		
									0		
									0		
									0		
Sum of Area and UA 0 0											
Overhead Glazing Area Weighted U											

Plan	Component		Glazing		Wid	lth	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt			-						-	-
1	U=0.30 (Code Baseline)	Table 406.2	0.30	3	6	0	5	0	90.0	27.00
2	U=0.30 (Code Baseline)	Table 406.2	0.30	2	3	0	5	0	30.0	9.00
4	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	5	0	30.0	9.00
5	U=0.30 (Code Baseline)	Table 406.2	0.30	1	2	6	3	0	7.5	2.25
Sum of Area and UA 157.5								47.3		
Vertical Glazing Area Weighted U									0.300	
				Vertical G	lazing and	Doors A	rea We	iahted U		0.300

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

Plan	Component		Wall		
ID	Description	Ref.	U	Net Area	UA
	R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054	1,299	70

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

	Slab on Grade (less than 2 feet below grade)											
	Plan	Component		Slab								
	ID	Description	Ref.	F		Slab Perim	FP					
ł		No slab on grade	NA	-			0					
ł												
					Sum of Perimeter and FP	0	0	1				

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

Ventilation Requirements	
Number of Bedrooms	3
Run-Time Percent in Each 4-Hour Segment	t <u>100%</u>
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	70 CFM

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

Compliance Certificate Instructions
Insulation Certificate for Residential New Construction Insulation Certificate
Duct Testing Affadavits
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 C	Out BetterBuiltNW's HVAC Sizing Tool: https://bet	tterbuiltnw.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	1,150 ft2	
Conditioned Volume	9,775 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	129	
Envelope Heat Load Sum of UA X AT	6,600 Btu / Hour	
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	5,384 Btu / Hour	
Building Design Heat Load Air Leakage + Envelope Heat Loss	11,984 Btu / Hour	
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	11,984 Btu / Hour	
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1		
Maximum Heat Equipment Output Building and Duct Heat Loss X 1.25 for heat pumps	14,980 Btu / Hour	
Building and Duct Heat Loss X 1.40 for all other systems		

Project Information	Messages / Results *
East Town Crossing Unit 202	
Building E	
Pioneer & Shaw, Puyallup	UA Reduction = 2.79, Proposed UA is better than baseline by 2%
Contact Information	
Synthesis 9, LLC	
Brett Lindsay	
blindsay@synthesis9.com	Whole House Mechanical Ventilation Airflow Rate: 70 CFM with Run Time Percent of 100%, Balanced, Distributed
253-468-4117	
	* 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 -- 1075 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

Component Performance, R occupancies		Baseline		Pi	roposed Desig	jn 🦷	
	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	105	31.5	0.300	105	31.5	
Flat/Vaulted Ceilings U =	0.027	0	0.0		0	0.0	
Wall (above grade) U =	0.056	1,394	78.0	0.054	1,394	75.3	
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	
		_					
	Baseli	ne UA Total	121.5	Propo	osed UA Total	118.8	
	Requi	ired Credits	4.5	Prop	osed Credits	7.0 f	rom Tables 406.2 and 406
				UA Perce	ent Reduction	2.3%	
					UA Reduction	2.8	

Table R	406.2 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	6.0	7.0

Table R4	406.3 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	Efficient Ventilation			1.5	2.0 ACH50 / Heat Recovery Ventilation min eff 65% / For R2, 0.25 cfm per ft2 at 50 Pa / HRV with min SHR eff of 0.65
3	High Efficiency HVAC				2.0	Ductless Split System, Zonal Control. Min HSPF of 10.
4	High Efficiency HVAC Distribution System	ribution 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	ł	kWh		0.0	
7	Appliance Package				0.0	
				Energy Credits	6.0	

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

Conditioned Floor Area, Proposed Design	n 1,075 sq. ft
Classification Sr	n Small Dwelling Unit
Notes	s

Exterior	Doors									
Plan	Component		Door		Wio	ith	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt									0	0.0
202A	Code Baseline, U=0.30	-	0.30	1	3	0	6	8	20	6.0
202B	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
						Sum	of Area	a and UA	40	12.0
					Exterior	Doors A	rea We	ighted U		0.300

Overhe	ad Glazing										
Plan	Component		Glazing		Wie	dth	He	eight			
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA	
									0		
									0		
									0		
									0		
									0		
						Sum	of Are	a and UA	0	C	0
				C	Overhead	Glazing A	Area We	eighted U			

Plan	Component		Glazing		Wio	dth	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt			-						-	-
1	U=0.30 (Code Baseline)	Table 406.2	0.30	2	6	0	5	0	60.0	18.00
2	U=0.30 (Code Baseline)	Table 406.2	0.30	1	3	0	5	0	15.0	4.50
4	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	5	0	30.0	9.00
Sum of Area and UA							105.0	31.5		
Vertical Glazing Area Weighted U								0.300		
				Vertical G	lazing and	Doors A	rea We	ighted U		0.300

Vertical Glazing	and Doors Area	Weighted U

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

	Walls (Above Grade)									
	Plan	Component		Wall						
	ID	Description	Ref.	U		Net Area	UA			
		R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,394	75	,		
ſ										
ľ								1		
					Sum of Area and UA	1,394	75			

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

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

Below Grade Walls and Slabs										
Plan	Component		Wall	Wall	Wall	Slab		Slab		
ID	Description	Ref.	U	Area	UA	F	Slab Perim	UA		
	Sum	ngth and UA	0	0.0		0	0	1		

Ventilation Requirements	
Number of Bedrooms	3
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	70 CFM

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

Compliance Certificate Compliance Certificate Instructions Insulation Certificate for Residential New Construction Insulation Certificate Insulation Certificate Duct Testing Affadavits Extra Certificate Extra Certificate Insulation
Duct Testing Affadavits
•
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 (∆T)	51 F
Conditioned Floor Area, Proposed Design	1,075 ft2
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	9,138 ft3
HVAC System Type	Heat Pump
Location of HVAC Distribution System	Unducted
Sum of UA, including exempt door and window	119
Envelope Heat Load Sum of UA X ∆T	6,056 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X ΔT) X .018))	5,033 Btu / Hour
Building Design Heat Load Air Leakage + Envelope Heat Loss	11,089 Btu / Hour
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	11,089 Btu / Hour
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1	
Maximum Heat Equipment Output Building and Duct Heat Loss X 1.25 for heat pumps	13,862 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	

Project Information	Messages / Results *
East Town Crossing Unit 203	
Building E	
Pioneer & Shaw, Puyallup	UA Reduction = 2.58, Proposed UA is better than baseline by 2%
Contact Information	
Synthesis 9, LLC	
Brett Lindsay	
blindsay@synthesis9.com	Whole House Mechanical Ventilation Airflow Rate: 70 CFM with Run Time Percent of 100%, Balanced, Distributed
253-468-4117	
	* 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? Occupancy Type? Code Version? WSEC 2018

New Construction R2 Multifamily Classification: Small Dwelling Unit -- 1055 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

Component Performance, R occupancies		Baseline		Pr	oposed Desig	gn
	U	Area	UA	U	Area	UA
Doors U =	0.300	40	12.0	0.300	40	12.
Overhead Glazing U =	0.500	0	0.0		0	0.0
Vertical Glazing U =	0.300	90	27.0	0.300	90	27.0
Flat/Vaulted Ceilings U =	0.027	0	0.0		0	0.0
Wall (above grade) U =	0.056	1,291	72.3	0.054	1,291	69.7
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
		_				
	Baseli	ne UA Total	111.3	Propo	sed UA Total	108.7
	Requ	ired Credits	4.5	Prop	osed Credits	7.0
				UA Perce	ent Reduction	2.3%
					JA Reduction	2.6

Table R4	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	6.0	7.0					

Table R4	06.3 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			Option 2.2	1.5	2.0 ACH50 / Heat Recovery Ventilation min eff 65% $$ / For R2, 0.25 cfm per ft2 at 50 Pa / HRV with min SHR eff of 0.65 $$
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 kWh				0.0	
7	Appliance Package			0.0		
				Energy Credits	6.0	

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

Conditioned Floor Area, Proposed Design	1,055 sq. ft
Classification S	Small Dwelling Unit
Notes	

Exterior	Doors									
Plan	Component		Door		Wie	dth	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt									0	0.0
203A	Code Baseline, U=0.30	-	0.30	1	3	C	6	8	20	6.0
203B	Code Baseline, U=0.30	-	0.30	1	3	C	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
						Sum	of Are	a and UA	40	12.0
					Exterio	r Doors A	Area We	ighted U		0.300

Plan	Component		Glazing		Wie	ith	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
									0	
									0	
									0	
									0	
									0	
						Sum	of Area	a and UA	0	0
Overhead Glazing Area Weighted U										

Vertical Glazing Schedule Rows to Show 2										2
Plan	Plan Component Glazing Width Height									
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exemp	ot l		-						-	-
1	U=0.30 (Code Baseline)	Table 406.2	0.30	2	6	0	5	0	60.0	18.00
3	U=0.30 (Code Baseline)	Table 406.2	0.30	1	5	0	6	0	30.0	9.00
Sum of Area and UA 90.0								27.0		
Vertical Glazing Area Weighted I							0 200			

Vertical Glazing Area Weighted U Vertical Glazing and Doors Area Weighted U

0.300

Flat/Vaul	ted Ceilings						
Plan	Component		Attic				1
ID	Description	Ref.	U		Area	UA	1
	No ceiling/roof in thermal envelope	NA	-			0.0	
				Sum of Area and UA	0	0.0	

Walls (Ab	oove Grade)						
Plan	Component		Wall				
ID	Description	Ref.	U		Net Area	UA	
	R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,291	70	
				Sum of Area and UA	1,291	70	

	Floor (ov	er crawl or exterior)						
	Plan	Component		Floor			UA	
	ID	Description	Ref.	U		Area		
ł.		No floors in thermal envelope	NA	-			0	
					Sum of Area and UA	0	0	
					oun of a first and of			

SI	ab on G	rade (less than 2 feet below grade)						
	Plan	Component		Slab				
	ID	Description	Ref.	F		Slab Perim	FP	
		No slab on grade	NA	-			0	
		0	0]				

Below Gr	ade Walls and Slabs								
Plan	Component		Wall	Wall	Wall	Slab		Slab	
ID	Description	Ref.	U	Area	UA	F	Slab Perim	UA	
	Sum	of Area, Ler	ngth 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	70 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 Due	t Testing Required? No	

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

Heating System Sizing - Proposed Design	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 (∆T)	51 F
Conditioned Floor Area, Proposed Design	1,055 ft2
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	8,968 ft3
HVAC System Type	Heat Pump
Location of HVAC Distribution System	Unducted
Sum of UA, including exempt door and window	109
Envelope Heat Load Sum of UA X ∆T	5,545 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	4,939 Btu / Hour
Building Design Heat Load Air Leakage + Envelope Heat Loss	10,484 Btu / Hour
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	10,484 Btu / Hour
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1	
Maximum Heat Equipment Output Building and Duct Heat Loss X 1.25 for heat pumps	13,105 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	

Project Information	Messages / Results *
East Town Crossing Unit 204	
Building E	
Pioneer & Shaw, Puyallup	UA Reduction = 2.53, Proposed UA is better than baseline by 2%
Contact Information	
Synthesis 9, LLC	
Brett Lindsay	
blindsay@synthesis9.com	Whole House Mechanical Ventilation Airflow Rate: 70 CFM with Run Time Percent of 100%, Balanced, Distributed
253-468-4117	
	* 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 -- 1005 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

Component Performance, R occupancies		Baseline		Pr	oposed Desig	gn	
	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	180	54.0	0.300	180	54.0	
Flat/Vaulted Ceilings U =	0.027	0	0.0		0	0.0	
Wall (above grade) U =	0.056	1,263	70.7	0.054	1,263	68.2	
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	
		_					
	Baseli	ne UA Total	136.7	Propo	osed UA Total	134.2	
	Requ	ired Credits	4.5	Prop	osed Credits	7.0 f	from Tables 406.2 and 40
				UA Perce	ent Reduction	1.8%	
					JA Reduction	2.5	

Table R406.2 Fuel Normalization Credits Total Credits (406.2 & 406.3) Fuel Normalization Full Description Energy Credits (406.3) Select System Type System No. Credits (406.2) 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. 2 Heat Pump, air-to-air or air to water 1.0 6.0 7.0 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).

Table R4	106.3 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	Option 2.2		2.0 ACH50 / Heat Recovery Ventilation min eff 65% / For R2, 0.25 cfm per ft2 at 50 Pa / HRV with min SHR eff of 0.65
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 kWh		0.0	
7	Appliance Package		0.0	
		Energy Credits	6.0	

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

Conditioned Floor Area, Proposed Design	1,005 sq. ft
Classification S	Small Dwelling Unit
Notes	

Exterior	Doors									
Plan	Component		Door		Wio	ith	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt									0	0.0
204A	Code Baseline, U=0.30	-	0.30	1	3	0	6	8	20	6.0
204B	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
						Sum	of Are	a and UA	40	12.0
					Exterior	Doors A	Area We	ighted U		0.300

Overhea	d Glazing										
Plan	Component		Glazing		Wie	dth	He	eight			
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA	
									0		
									0		
									0		
									0		
									0		
Sum of Area and UA									0	0	D
				c	Overhead	Glazing A	Area We	eighted U			

Vert	tical Glazing Schedule							Ro	ws to Show	3
Plan Component			Glazing	lazing		Width		eight		
1	D Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exe	empt		-						-	-
1 1	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	5	0	30.0	9.00
22	U=0.30 (Code Baseline)	Table 406.2	0.30	2	3	0	5	0	30.0	9.00
34	U=0.30 (Code Baseline)	Table 406.2	0.30	4	6	0	5	0	120.0	36.00
						Sum	of Area	a and UA	180.0	54.0
					Vortical		roa Wa	ighted II		0.200

0.300

Vertical Glazing Area Weighted U Vertical Glazing and Doors Area Weighted U

	ted Ceilings		A 441 a			
Plan	Component		Attic			
ID	Description	Ref.	U		Area	UA
	No ceiling/roof in thermal envelope	NA	-			0.0
				Sum of Area and UA	0	0.0

	Walls (Ab	ove Grade)						
	Plan	Component		Wall				
	ID	Description	Ref.	U		Net Area	UA	
		R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,263	68	
Γ								
ſ								
					Sum of Area and UA	1,263	68	

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

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

Below Grade Walls and Slabs									
Plan	Component		Wall	Wall	Wall	Slab		Slab	
ID	Description	Ref.	U	Area	UA	F	Slab Perim	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	70 CFM

HVAC Thermal Distribution System Download RS-33 (2018) http://www.energy.wsu.edu/Documents/Duct%20Testing%20Standard						
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 Affadavits		
Existing Construction	Affidavit, Existing	
New Construction	Affidavit, New	
Prescriptive Checklist for 2018 WSEC	Prescriptive Checklist	
Alterations (Remodel) Worksheet	Worksheet	

Heating System Sizing - Proposed Design	y 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 (∆T)	51 F				
Conditioned Floor Area, Proposed Design	1,005 ft2				
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	8,543 ft3				
HVAC System Type	Heat Pump				
Location of HVAC Distribution System	Unducted	-			
Sum of UA, including exempt door and window	134				
Envelope Heat Load Sum of UA X ∆T	6,843 Btu / Hour				
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X.018))	4,705 Btu / Hour				
Building Design Heat Load Air Leakage + Envelope Heat Loss	11,549 Btu / Hour				
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	11,549 Btu / Hour				
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1					
Maximum Heat Equipment Output Building and Duct Heat Loss X 1.25 for heat pumps Building and Duct Heat Loss X 1.40 for all other systems	14,436 Btu / Hour				
building and buck heat Loss X 1.40 for all other systems					

Project Information	Messages / Results *
East Town Crossing Unit 205	
Building E	
Pioneer & Shaw, Puyallup	UA Reduction = 2.69, Proposed UA is better than baseline by 2%
Contact Information	
Synthesis 9, LLC	
Brett Lindsay	
blindsay@synthesis9.com	Whole House Mechanical Ventilation Airflow Rate: 70 CFM with Run Time Percent of 100%, Balanced, Distributed
253-468-4117	
	* Results assume your inputs are complete and correct. Results do not constitute an approval. Analysis should be reviewed by your AHJ.

 What code compliance pathway are you using?
 Prescriptive Path Compliance with Option 1 (preferred)
 Project Building Type? Occupancy Type? Code Version? WSEC 2018

New Construction R2 Multifamily Classification: Small Dwelling Unit -- 1055 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

Component Performance, R occupancies		Baseline		Pr	oposed Desig	gn	
	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	90	27.0	0.300	90	27.0	
Flat/Vaulted Ceilings U =	0.027	0	0.0		0	0.0	
Wall (above grade) U =	0.056	1,347	75.5	0.054	1,347	72.8	
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	
		_					
	Baseli	ne UA Total	114.5	Propo	sed UA Total	111.8	
	Requ	ired Credits	4.5	Prop	osed Credits	7.0	from Tables 406.2 and 40
				UA Perce	nt Reduction	2.4%	
				L. L.	JA Reduction	2.7	

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 R4	406.2 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	6.0	7.0

Table R4	06.3 Energy Credits					
Option No.	Category			Select Options	Energy Credits	Brief Description of Selected Options*
1	Efficient Building Envelope	invelope			0.0	
2	Air Leakage Control and Efficient Ventilation			Option 2.2	1.5	2.0 ACH50 / Heat Recovery Ventilation min eff 65% $$ / For R2, 0.25 cfm per ft2 at 50 Pa / HRV with min SHR eff of 0.65 $$
3	3 High Efficiency HVAC			Option 3.4	2.0	Ductless Split System, Zonal Control. Min HSPF of 10.
4	High Efficiency HVAC Distribution System	ligh 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	kV	Wh		0.0	
7	Appliance Package				0.0	
				Energy Credits	6.0	

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

Conditioned Floor Area, Proposed Design	1 1,055 sq. ft
Classification Sr	n Small Dwelling Unit
Notes	3

Exterior	Doors									
Plan	Component		Door		Wio	ith	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt									0	0.0
205A	Code Baseline, U=0.30	-	0.30	1	3	0	6	8	20	6.0
205B	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
						Sum	of Are	a and UA	40	12.0
Exterior Doors Area Weighted U										0.300

Overhea	d Glazing	•					•			
Plan	Component		Glazing		Wie	dth	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
									0	
									0	
									0	
									0	
									0	
Sum of Area and U										0
Overhead Glazing Area Weighted U										

	Vertical	Glazing Schedule							Ro	ws to Show	2
	Plan	Component		Glazing		Wic	ith	He	eight		
	ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
	Exempt			-						-	-
1	1	U=0.30 (Code Baseline)	Table 406.2	0.30	2	6	0	5	0	60.0	18.00
2	3	U=0.30 (Code Baseline)	Table 406.2	0.30	1	5	0	6	0	30.0	9.00
Sum of Area and UA									90.0	27.0	
Vertical Glazing Area Weighted U										0.300	
					Vertical G	lazing and	Doors A	Area We	ighted U		0.300

Flat/Vaulted Ceilings											
Plan	Component		Attic								
ID	Description	Ref.	U		Area	UA					
	No ceiling/roof in thermal envelope	NA	-		1	0.0					
				Sum of Area and UA	0	0.0					

Walls (Above Grade)										
Plan	Component		Wall							
ID	Description	Ref.	U		Net Area	UA				
	R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,347	73				
				Sum of Area and UA	1,347	73				

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

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

Below Gr	ade Walls and Slabs								
Plan	Component		Wall	Wall	Wall	Slab		Slab	
ID	Description	Ref.	U	Area	UA	F	Slab Perim	UA	
	Sum	of Area, Ler	ngth and UA	0	0.0		0	0	

Ventilation Requirements	
Number of Bedrooms	i <u>2</u>
Run-Time Percent in Each 4-Hour Segment	nt <u>100%</u>
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	n IMC, Section 403
Whole House Mechanical Ventilation Airflow Rate	e 70 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 Due	t Testing Required? No	

nks to Download Forms, Checklists and Other Resources	Link	
Compliance Certificate	Compliance Certificate	Instructions
Insulation Certificate for Residential New Construction	Insulation Certificate	
Duct Testing Affadavits		
Existing Constru	uction Affidavit, Existing	
New Constru	uction 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	1,055 ft2
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	8,968 ft3
HVAC System Type	Heat Pump
Location of HVAC Distribution System	Unducted
Sum of UA, including exempt door and window	112
Envelope Heat Load Sum of UA X AT	5,700 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	4,939 Btu / Hour
Building Design Heat Load Air Leakage + Envelope Heat Loss	10,639 Btu / Hour
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	10,639 Btu / Hour
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1	
Maximum Heat Equipment Output Building and Duct Heat Loss X 1.25 for heat pumps	13,299 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	

Project Information	Messages / Results *
East Town Crossing Unit 206	
Building E	
Pioneer & Shaw, Puyallup	UA Reduction = 2.71, Proposed UA is better than baseline by 2%
Contact Information	
Synthesis 9, LLC	
Brett Lindsay	
blindsay@synthesis9.com	Whole House Mechanical Ventilation Airflow Rate: 70 CFM with Run Time Percent of 100%, Balanced, Distributed
253-468-4117	
	* 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 -- 1005 sq. ft. Baseline Description: Code Baseline - Baseline and proposed window areas are equal. Up to 15 sf exempt window and 24 sf exempt door allowable

Component Performance, R occupancies		Baseline		Pr	oposed Desig	jn 🦷	
	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	90	27.0	0.300	90	27.0	
Flat/Vaulted Ceilings U =	0.027	0	0.0		0	0.0	
Wall (above grade) U =	0.056	1,353	75.8	0.054	1,353	73.0	
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	
	Baseli	ne UA Total	114.8	Propo	sed UA Total	112.0	
	Requi	ired Credits	4.5	Prop	osed Credits	7.0 _f	rom Tables 406.2 and 406
				UA Perce	ent Reduction	2.4%	
					JA Reduction	2.7	

Table R	406.2 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	6.0	7.0

Table R4	406.3 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			Option 2.2	1.5	2.0 ACH50 / Heat Recovery Ventilation min eff 65% / For R2, 0.25 cfm per ft2 at 50 Pa / HRV with min SHR eff of 0.65
3	igh Efficiency HVAC			Option 3.4	2.0	Ductless Split System, Zonal Control. Min HSPF of 10.
4	High Efficiency HVAC Distribution System	igh 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	k	kWh		0.0	
7	Appliance Package				0.0	
				Energy Credits	6.0	

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

Conditioned Floor Area, Proposed Design	1,005 sq. ft
Classification S	Small Dwelling Unit
Notes	

Exterior	Doors									
Plan	Component		Door		Wio	ith	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt									0	0.0
206A	Code Baseline, U=0.30	-	0.30	1	3	0	6	8	20	6.0
206B	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
						Sum	of Are	a and UA	40	12.0
Exterior Doors Area Weighted U									0.300	

Overhea	d Glazing										
Plan	Component		Glazing		Wie	dth	He	eight			
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA	
									0		
									0		
									0		
									0		
									0		
						Sum	of Are	a and UA	0	0	D
				c	Overhead	Glazing A	Area We	eighted U			

Plan	Component		Glazing		Wic	ith	He	ight		1
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt			-						-	-
1	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	5	0	30.0	9.00
2	U=0.30 (Code Baseline)	Table 406.2	0.30	2	3	0	5	0	30.0	9.00
4	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	5	0	30.0	9.00
Sum of Area and UA 90.							90.0	27.0		
Vertical Glazing Area Weighted U							0.300			
Vertical Glazing and Doors Area Weighted U									0.300	

Vertical Glazing	and Doors Area	Weighted U

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

Walls (Above Grade)						
Plan	Component		Wall			
ID	Description	Ref.	U		Net Area	UA
	R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,353	73
	·			Sum of Area and UA	1,353	73

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

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

Below Grade Walls and Slabs									
Plan	Component		Wall	Wall	Wall	Slab		Slab	
ID	Description	Ref.	U	Area	UA	F	Slab Perim	UA	
Sum of Area, Length and U					0.0		0	0	1

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	70 CFM

HVAC Thermal Distribution System	Download RS-33 (2018) http://www.ene	rgy.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 Affadavits		
Existing Construct	ction Affidavit, Existing	
New Construct	ction 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 (∆T)	51 F
Conditioned Floor Area, Proposed Design	1,005 ft2
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	8,543 ft3
HVAC System Type	Heat Pump
Location of HVAC Distribution System	Unducted
Sum of UA, including exempt door and window	112
Envelope Heat Load Sum of UA X ∆T	5,714 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	4,705 Btu / Hour
Building Design Heat Load Air Leakage + Envelope Heat Loss	10,419 Btu / Hour
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	10,419 Btu / Hour
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1	
Maximum Heat Equipment Output Building and Duct Heat Loss X 125 for heat pumps	13,024 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	

Project Information	Messages / Results *
East Town Crossing Unit 207	
Building E	
Pioneer & Shaw, Puyallup	UA Reduction = 2.7, Proposed UA is better than baseline by 2%
Contact Information	
Synthesis 9, LLC	
Brett Lindsay	
blindsay@synthesis9.com	Whole House Mechanical Ventilation Airflow Rate: 70 CFM with Run Time Percent of 100%, Balanced, Distributed
253-468-4117	
	* 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 -- 1193 sq. ft. Baseline Description: Code Baseline - Baseline and proposed window areas are equal. Up to 15 sf exempt window and 24 sf exempt door allowable Up to 15 sf exempt window and 24 sf exempt door allowable

Component Performance, R occupancies		Baseline		Pr	oposed Desig	gn	
	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		C	0.0	
Vertical Glazing U =	0.300	128	38.3	0.300	128	38.3	
Flat/Vaulted Ceilings U =	0.027	0	0.0		C	0.0	
Wall (above grade) U =	0.056	1,350	75.6	0.054	1,350	72.9	
Floors over Crawlspace U =	0.029	0	0.0		C	0.0	
Slab on Grade F =	0.540	0	0.0		C	0.0	
Below Grade Wall U =	0.042	0	0.0		C	0.0	
Below Grade Slab F =	0.570	0	0.0		C	0.0	
		_					
	Baseli	ne UA Total	125.8	Propo	osed UA Tota	123.1	
	Requi	red Credits	4.5	Prop	osed Credits	7.0 f	from Tables 406.2 and 406
				UA Perce	ent Reduction	2.1%	
					JA Reduction	2.7	

Table R4	406.2 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	6.0	7.0

Table R4	06.3 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		Option 2.2	1.5	2.0 ACH50 / Heat Recovery Ventilation min eff 65% / For R2, 0.25 cfm per ft2 at 50 Pa / HRV with min SHR eff of 0.65
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	kWh		0.0	
7	Appliance Package			0.0	
			Energy Credits	6.0	

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

Conditioned Floor Area, Proposed Design 1,193 sq. ft
Classification Small Dwelling Unit
Notes

Exterior	Doors									
Plan	Component		Door		Wio	ith	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt									0	0.0
207A	Code Baseline, U=0.30	-	0.30	1	3	0	6	8	20	6.0
207B	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
						Sum	of Area	a and UA	40	12.0
					Exterior	Doors A	Area We	ighted U		0.300

Overhea	d Glazing										
Plan	Component		Glazing		Wie	dth	He	eight			
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA	
									0		
									0		
									0		
									0		
									0		
						Sum	of Are	a and UA	0	0	1
				c	verhead (Glazing A	Area We	ighted U			

Plan	Component		Glazing		Wid	ith	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt	t		-						-	-
1	U=0.30 (Code Baseline)	Table 406.2	0.30	2	6	0	5	0	60.0	18.00
2	U=0.30 (Code Baseline)	Table 406.2	0.30	2	3	0	5	0	30.0	9.00
4	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	5	0	30.0	9.00
5	U=0.30 (Code Baseline)	Table 406.2	0.30	1	2	6	3	0	7.5	2.25
						Sum	of Area	a and UA	127.5	38.3
					Vertical C	Glazing A	rea We	ighted U		0.300
				Vertical G	lazing and	Doors A	rea We	iahted U		0.300

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

Plan	Component		Wall		
ID	Description	Ref.	U	Net Area	UA
	R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054	1,350	73

Floor (ov	er crawl or exterior)						
Plan	Component		Floor			UA	
ID	Description	Ref.	U		Area	1	
	No floors in thermal envelope	NA	-			0	
				Sum of Area and UA	0	0	

	Slab on G	arade (less than 2 feet below grade)						
	Plan	Component		Slab				
	ID	Description	Ref.	F		Slab Perim	FP	
ł		No slab on grade	NA	-			0	
ł								
1					Sum of Perimeter and FP	0	0	1

Below Gra	ade Walls and Slabs								
Plan	Component		Wall	Wall	Wall	Slab		Slab	
ID	Description	Ref.	U	Area	UA	F	Slab Perim	UA	
	Sum	of Area, Ler	igth and UA	0	0.0		0	0	

Ventilation Requirements	
Number of Bedrooms	3
Run-Time Percent in Each 4-Hour Segment	t <u>100%</u>
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	70 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 Require	ed? No	_

Compliance Certificate Compliance Certificate Instructions Insulation Certificate for Residential New Construction Insulation Certificate Instructions Duct Testing Affadavits Existing Construction Affidavit. Existing Instructions New Construction Affidavit, New New Construction Affidavit, New Prescriptive Checklist for 2018 WSEC Prescriptive Checklist
Duct Testing Affadavits Existing Construction Affidavit, Existing New Construction Affidavit, New
Existing Construction Affidavit, Existing New Construction Affidavit, New
New Construction Affidavit, New
Proscriptive Checklist for 2018 WSEC
Alterations (Remodel) Worksheet Worksheet

Heating System Sizing - Proposed Design Try C	Out BetterBuiltNW's HVAC Sizing Tool: https://bet	tterbuiltnw.com/resources/hvac-sizing-tool
Nearest Weather Station	Puyallup	
Indoor Design Temperature	70 F	
Outdoor Design Temperature	19 F	
Design Temperature Difference (∆T)	51 F	
Conditioned Floor Area, Proposed Design	1,193 ft2	
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	10,141 ft3	
	Us of Dump	1
HVAC System Type	Heat Pump	
Location of HVAC Distribution System	Unducted	
Sum of UA, including exempt door and window	123	
Envelope Heat Load Sum of UA X ΔT	6,279 Btu / Hour	
Air Leakage Heat Load ((Volume X 0.6) X ΔT) X .018))	5,585 Btu / Hour	
Building Design Heat Load Air Leakage + Envelope Heat Loss	11,865 Btu / Hour	
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	11,865 Btu / Hour	
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1		
Maximum Heat Equipment Output Building and Duct Heat Loss X 1.25 for heat pumps	14,831 Btu / Hour	
Building and Duct Heat Loss X 1.40 for all other systems		

Project Information	Messages / Results *
East Town Crossing Unit 208	
Building E	
Pioneer & Shaw, Puyallup	UA Reduction = 2.86, Proposed UA is better than baseline by 2%
Contact Information	
Synthesis 9, LLC	
Brett Lindsay	
blindsay@synthesis9.com	Whole House Mechanical Ventilation Airflow Rate: 70 CFM with Run Time Percent of 100%, Balanced, Distributed
253-468-4117	
	* Results assume your inputs are complete and correct. Results do not constitute an approval. Analysis should be reviewed by your AHJ.

What code compliance pathway are you using? Prescriptive Path Compliance with Option 1 (preferred) Project Building Type? New Construction Occupancy Type? Code Version? WSEC 2018 About Your Selection: Up to 15 sf exempt window and 24 sf exempt door allowable

R2 Multifamily Classification: Small Dwelling Unit -- 1124 sq. ft. Baseline Description: Code Baseline - Baseline and proposed window areas are equal.

RESULTS - Comparison of Baseline and Proposed Design Proposed Design Component Performance, R occupancies Baseline U U Area UA Area UA 40 12.0 0.300 40 12.0 Doors U = 0.300 Overhead Glazing U = 0.0 0 0.0 0.500 0 Vertical Glazing U = 0.300 150 45.0 0.300 150 45.0 0.0 0.0 Flat/Vaulted Ceilings U = 0 0.027 0.054 1,430 80.1 1,430 77.2 Wall (above grade) U = 0.056 Floors over Crawlspace U = 0.029 0 0.0 0 0.0 Slab on Grade F = 0 0.0 0.0 0.540 0 0.0 0 0.0 Below Grade Wall U = 0 0.042 0.0 Below Grade Slab F = 0.570 0 0.0 0 Baseline UA Total 137.1 Proposed UA Total 134.2 **Required Credits** 4.5 **Proposed Credits** 7.0 from Tables 406.2 and 406.3 2.1% **UA Percent Reduction** 2.9 **UA Reduction**

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 R4	406.2 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	6.0	7.0

Table R4	06.3 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	Option 2.2	1.5	2.0 ACH50 / Heat Recovery Ventilation min eff 65% / For R2, 0.25 cfm per ft2 at 50 Pa / HRV with min SHR eff of 0.65
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 kWh		0.0	
7	Appliance Package		0.0	
		Energy Credits	6.0	

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

Conditioned Floor Area, Proposed Design 1,124 sq. ft	
Classification Small Dwelling Unit	
Notes	

Exterior	Doors															
Plan	Component		Door		Wio	dth	He	eight								
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA						
Exempt									0	0.0						
208A	Code Baseline, U=0.30	-	0.30	1	3	0	6	8	20	6.0						
208B	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						
						Sum	of Are	a and UA	40	12.0						
					Exterior	Exterior Doors Area Weighted U 0.300										

Plan	Component		Glazing		Wie	ith	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
									0	
									0	
									0	
									0	
									0	
						Sum	of Area	a and UA	0	0
Overhead Glazing Area Weighted U										

	Vertical Glazing Schedule Rows to Sh								ws to Show	2	
	Plan	Component		Glazing		Wie	ith	He	eight		
	ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
	Exempt			-						-	-
1	1	U=0.30 (Code Baseline)	Table 406.2	0.30	4	6	0	5	0	120.0	36.00
2	4	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	5	0	30.0	9.00
	Sum of Area and UA							150.0	45.0		
Vertical Glazing Area Weighted U								0.300			
					Vertical G	lazing and	Doors A	rea We	eighted U		0.300

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

Walls (At	bove Grade)					
Plan	Component		Wall			
ID	Description	Ref.	U		Net Area	UA
	R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,430	77
				Sum of Area and UA	1,430	77

	Floor (ov	er crawl or exterior)						
	Plan	Component		Floor			UA	
	ID	Description	Ref.	U		Area		
ł.		No floors in thermal envelope	NA	-			0	
		Sum of Area and UA	0	0				
					oun of a first and of			

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

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

Ventilation Requirements	
Number of Bedrooms	3
Run-Time Percent in Each 4-Hour Segment	t <u>100%</u>
Is the system Balanced?	Palanced Verify system meets definition of 'Balanced Whole-House Ventilation'
Is the system Distributed?	Pistributed Verify system meets definition of 'Distributed Whole-House Ventilation'
Ventilation Code Section	IMC, Section 403
Whole House Mechanical Ventilation Airflow Rate	9 70 CFM

HVAC Thermal Distribution System	Download RS-33 (2018) http://www.e	Download RS-33 (2018) http://www.energy.wsu.edu/Documents/Duct%20Testing%20Standards%2				
Is this a hydronic heating system?	No					
Location of Ducts	Unducted					
Location of Air Handler	Unconditioned Space					
Is Duct Testing Required? No						

nks to Download Forms, Checklists and Other Resources	Link	
Compliance Certificate	Compliance Certificate	Instructions
Insulation Certificate for Residential New Construction	Insulation Certificate	
Duct Testing Affadavits		
Existing Constru	uction Affidavit, Existing	
New Constru	uction 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 (∆T)	51 F
Conditioned Floor Area, Proposed Design	
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	9,554 ft3
HVAC System Type	Heat Pump
Location of HVAC Distribution System	Unducted
Sum of UA, including exempt door and window	134
Envelope Heat Load Sum of UA X AT	6,845 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X ΔT) X .018))	5,262 Btu / Hour
Building Design Heat Load Air Leakage + Envelope Heat Loss	12,108 Btu / Hour
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	12,108 Btu / Hour
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1	
Maximum Heat Equipment Output Building and Duct Heat Loss X 1.25 for heat pumps	15,135 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	

Project Information	Messages / Results *
East Town Crossing Unit 301	
Building E	
Pioneer & Shaw, Puyallup	UA Reduction = 2.6, Proposed UA is better than baseline by 2%
Contact Information	
Synthesis 9, LLC	
Brett Lindsay	
blindsay@synthesis9.com	Whole House Mechanical Ventilation Airflow Rate: 70 CFM with Run Time Percent of 100%, Balanced, Distributed
253-468-4117	
	* 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 -- 1151 sq. ft. Baseline Description: Code Baseline - Baseline and proposed window areas are equal. Up to 15 sf exempt window and 24 sf exempt door allowable

Component Performance, R occupancies		Baseline Proposed Design				In		
	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	158	47.3		0.300	158	47.3	
Flat/Vaulted Ceilings U =	0.027	1,151	31.1		0.027	1,151	31.1	
Wall (above grade) U =	0.056	1,300	72.8		0.054	1,300	70.2	
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	
		_						
	Baseli	ne UA Total	163.1		Propo	sed UA Total	160.5	
	Requi	ired Credits	4.5		Prop	osed Credits	7.0 f	rom Tables 406.2 and 406
					UA Perce	nt Reduction	1.6%	
						JA Reduction	2.6	

Table R4	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	6.0	7.0				

Table R4	106.3 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			Option 2.2	1.5	2.0 ACH50 / Heat Recovery Ventilation min eff 65% / For R2, 0.25 cfm per ft2 at 50 Pa / HRV with min SHR eff of 0.65
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	k	kWh		0.0	
7	Appliance Package				0.0	
				Energy Credits	6.0	

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

Conditioned Floor Area, Proposed Design	1,151	sq. ft	
Classification	Small Dwelling	g Unit	
Notes			

Exterior	Doors									
Plan	Component		Door		Wio	ith	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt									0	0.0
301A	Code Baseline, U=0.30	-	0.30	1	3	0	6	8	20	6.0
301B	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
						Sum	of Are	a and UA	40	12.0
					Exterior	Doors A	Area We	ighted U		0.300

Overhea	d Glazing										
Plan	Component		Glazing		Wie	ith	Н	eight			
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA	
									0		
									0		
									0		
									0		
									0		
						Sum	of Are	a and UA	0	0	D
				c	verhead (Glazing A	Area We	eighted U			

Plan	Component		Glazing		Wic	lth	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt			-						-	-
1	U=0.30 (Code Baseline)	Table 406.2	0.30	3	6	0	5	0	90.0	27.00
2	U=0.30 (Code Baseline)	Table 406.2	0.30	2	3	0	5	0	30.0	9.00
4	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	5	0	30.0	9.00
5	U=0.30 (Code Baseline)	Table 406.2	0.30	1	2	6	3	0	7.5	2.25
						Sum	of Area	a and UA	157.5	47.3
					Vertical C	Glazing A	rea We	ighted U		0.300
				Vertical G	lazing and	Doors A	rea We	ighted U		0.300

Flat/Vault	ted Ceilings					
Plan	Component		Attic			
ID	Description	Ref.	U		Area	UA
	R49 blown Attic STD baffled (Code Baseline, Option 1.1-1.4)	10-7	0.027		1,151	31.1
		•		Sum of Area and UA	1,151	31.1

Walls (A	bove Grade)					
Plan	Component		Wall			
ID	Description	Ref.	U		Net Area	UA
	R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,300	70
	• •			Sum of Area and UA	1,300	70

Floor (ov	er crawl or exterior)						
Plan	Component		Floor			UA	
ID	Description	Ref.	U		Area		
	No floors in thermal envelope	NA	-			0	
							1
				Sum of Area and UA	0	0	

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

Below Gr	ade Walls and Slabs								
Plan	Component		Wall	Wall	Wall	Slab		Slab	
ID	Description	Ref.	U	Area	UA	F	Slab Perim	UA	
	Sum	of Area, Ler	ngth and UA	0	0.0		0	0	

Ventilation Requirements		
Number of Bedrooms	3	
Run-Time Percent in Each 4-Hour Segment	100%	
Is the system Balanced?	Balanced Verify system meets definition of 'Bala	nced Whole-House Ventilation'
Is the system Distributed?	Distributed Verify system meets definition of 'Distr	ibuted Whole-House Ventilation'
Ventilation Code Section	IMC, Section 403	
Whole House Mechanical Ventilation Airflow Rate	70 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 Require	ed? No	_

Compliance Certificate Instructions
Insulation Certificate for Residential New Construction Insulation Certificate
Duct Testing Affadavits
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 C	Dut 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 (∆T)	51 F
Conditioned Floor Area, Proposed Design	1,151 ft2
Conditioned Volume	9,784 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	161
Envelope Heat Load Sum of UA X ΔT	8,188 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	5,389 Btu / Hour
Building Design Heat Load Air Leakage + Envelope Heat Loss	13,577 Btu / Hour
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	13,577 Btu / Hour
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1	
Maximum Heat Equipment Output Building and Duct Heat Loss X 1.25 for heat pumps	16,971 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	

Project Information	Messages / Results *
East Town Crossing Unit 302	
Building E	
Pioneer & Shaw, Puyallup	UA Reduction = 2.73, Proposed UA is better than baseline by 2%
Contact Information	
Synthesis 9, LLC	
Brett Lindsay	
blindsay@synthesis9.com	Whole House Mechanical Ventilation Airflow Rate: 70 CFM with Run Time Percent of 100%, Balanced, Distributed
253-468-4117	
	Results assume your inputs are complete and correct. Results do not constitute an approval. Analysis should be reviewed by your AHJ.

 What code compliance pathway are you using?
 Prescriptive Path Compliance with Option 1 (preferred)
 Project Building Type? New Construction Occupancy Type? Code Version? WSEC 2018

R2 Multifamily Classification: Small Dwelling Unit -- 1075 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

Component Performance, R occupancies		Baseline		Pr	oposed Desig	IN	
	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	135	40.5	0.300	135	40.5	
Flat/Vaulted Ceilings U =	0.027	1,075	29.0	0.027	1,075	29.0	
Wall (above grade) U =	0.056	1,364	76.4	0.054	1,364	73.6	
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	
	Baseli	ne UA Total	157.9	Propo	sed UA Total	155.2	
	Requ	ired Credits	4.5	Prop	osed Credits	7.0	from Tables 406.2 and
				UA Perce	nt Reduction	1.7%	
				ι	A Reduction	2.7	

Table R4	406.2 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	6.0	7.0

Table R4	106.3 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			Option 2.2	1.5	2.0 ACH50 / Heat Recovery Ventilation min eff 65% $$ / For R2, 0.25 cfm per ft2 at 50 Pa / HRV with min SHR eff of 0.65 $$
3	High Efficiency HVAC	c			2.0	Ductless Split System, Zonal Control. Min HSPF of 10.
4	High Efficiency HVAC Distribution System	cy 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	ł	kWh		0.0	
7	7 Appliance Package				0.0	
				Energy Credits	6.0	

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

Conditioned Floor Area, Proposed Design	n 1,075 sq. ft					
Classification Sr	n Small Dwelling Unit					
Classification Small Dwelling Unit Notes						

Exterior	Doors									
Plan	Component		Door		Wio	dth	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt									0	0.0
302A	Code Baseline, U=0.30	-	0.30	1	3	0	6	8	20	6.0
302B	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
						Sum	of Are	a and UA	40	12.0
					Exterior	r Doors A	Area We	ighted U		0.300

Overhea	d Glazing									
Plan	Component		Glazing		Wie	dth	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
									0	
									0	
									0	
									0	
									0	
	Sum of Area and U								0	C
				C	verhead	Glazing A	Area We	ighted U		

Vertical Glazing Schedule Rows to Show 3									3	
Plan	Component		Glazing	zing	Wie	Width		eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exemp	t		-						-	-
1 1	U=0.30 (Code Baseline)	Table 406.2	0.30	3	6	0	5	0	90.0	27.00
2 2	U=0.30 (Code Baseline)	Table 406.2	0.30	1	3	0	5	0	15.0	4.50
3 4	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	5	0	30.0	9.00
						Sum	of Area	a and UA	135.0	40.5
					Vertical (Glazing A	rea We	iahted U		0.300

Vertical Glazing and Doors Area Weighted U

0.300

Fla	t/Vault	ed Ceilings					
F	Plan	Component		Attic			
	ID	Description	Ref.	U		Area	UA
		R49 blown Attic STD baffled (Code Baseline, Option 1.1-1.4)	10-7	0.027		1,075	29.0
					Sum of Area and UA	1,075	29.0

Wa	alls (Ab	ove Grade)					
	Plan	Component		Wall			
	ID	Description	Ref.	U		Net Area	UA
		R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,364	74
					Sum of Area and UA	1,364	74

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

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

Below Grade Walls and Slabs									
Plan	Component		Wall	Wall	Wall	Slab		Slab	
ID	Description	Ref.	U	Area	UA	F	Slab Perim	UA	
Sum of Area, Length and UA				0	0.0		0	0	1

Ventilation Requirements		
Number of Bedrooms	3	
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 40	3
Whole House Mechanical Ventilation Airflow Rate	70 CI	FM

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

Compliance Certificate Compliance Certificate Instructions Insulation Certificate for Residential New Construction Insulation Certificate Insulation Certificate Duct Testing Affadavits Extra Certificate Extra Certificate Insulation
Duct Testing Affadavits
•
Existing Construction Affidavit, Existing
New Construction Affidavit, New
Prescriptive Checklist for 2018 WSEC Prescriptive Checklist
Alterations (Remodel) Worksheet Worksheet

Heating System Sizing - Proposed Design	y Out BetterBuiltNW's HVAC Sizing Tool: https://be	tterbuiltnw.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	1,075 ft2	
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	9,138 ft3	
HVAC System Type	Heat Pump	
Location of HVAC Distribution System	Unducted	-
Sum of UA, including exempt door and window	155	
Envelope Heat Load Sum of UA X ∆T	7,913 Btu / Hour	
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X.018))	5,033 Btu / Hour	
Building Design Heat Load Air Leakage + Envelope Heat Loss	12,946 Btu / Hour	
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	12,946 Btu / Hour	
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1		
Maximum Heat Equipment Output Building and Duct Heat Loss X 1.25 for heat pumps Building and Duct Heat Loss X 1.40 for all other systems	16,182 Btu / Hour	

Project Information	Messages / Results *
East Town Crossing Unit 303	
Building E	
Pioneer & Shaw, Puyallup	UA Reduction = 2.58, Proposed UA is better than baseline by 2%
Contact Information	
Synthesis 9, LLC	
Brett Lindsay	
blindsay@synthesis9.com	Whole House Mechanical Ventilation Airflow Rate: 70 CFM with Run Time Percent of 100%, Balanced, Distributed
253-468-4117	
	Results assume your inputs are complete and correct. Results do not constitute an approval. Analysis should be reviewed by your AHJ.

 What code compliance pathway are you using?
 Prescriptive Path Compliance with Option 1 (preferred)
 Project Building Type? Occupancy Type? Code Version? WSEC 2018

New Construction R2 Multifamily Classification: Small Dwelling Unit -- 1055 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

Component Performance, R occupancies		Baseline			Pr	oposed Desig	jn 🛛
	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	90	27.0		0.300	90	27.0
Flat/Vaulted Ceilings U =	0.027	1,055	28.5		0.027	1,055	28.5
Wall (above grade) U =	0.056	1,291	72.3		0.054	1,291	69.7
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
	Baseli	ne UA Total	139.8		Propo	sed UA Total	137.2
	Requ	ired Credits	4.5		Prop	osed Credits	7.0
					UA Perce	nt Reduction	1.8%
					ι	JA Reduction	2.6

Table R4	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	6.0	7.0			

Table R4	06.3 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	Option 2.2	1.5	2.0 ACH50 / Heat Recovery Ventilation min eff 65% / For R2, 0.25 cfm per ft2 at 50 Pa / HRV with min SHR eff of 0.65
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 kWh		0.0	
7	Appliance Package		0.0	
		Energy Credits	6.0	

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

Conditioned Floor Area, Proposed Design	1,055 sq. ft		
Classification Small Dwelling Unit			
Notes			

Exterior	Doors									
Plan	Component		Door		Wio	dth	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt									0	0.0
303A	Code Baseline, U=0.30	-	0.30	1	3	0	6	8	20	6.0
303B	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
						Sum	of Are	a and UA	40	12.0
					Exterior	r Doors A	Area We	ighted U		0.300

Ov	erhead	d Glazing										
F	Plan	Component		Glazing		Wie	ith	He	eight			
	ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA	
										0		
										0		
										0		
										0		
										0		
_							Sum	of Are	a and UA	0	0	0
Overhead Glazing Area Weighted U												

Vertical Glazing Schedule Rows to Show 2										2
Plan	Component		Glazing		Wie	dth	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt			-						-	-
1	U=0.30 (Code Baseline)	Table 406.2	0.30	2	6	0	5	0	60.0	18.00
2 3	U=0.30 (Code Baseline)	Table 406.2	0.30	1	5	0	6	0	30.0	9.00
						Sum	of Are	a and UA	90.0	27.0
					Vertical	Glazing (area We	inhted II		0 300

Vertical Glazing and Doors Area Weighted U

0.300

Flat/Vaul	ted Ceilings					
Plan	Component		Attic			
ID	Description	Ref.	U		Area	UA
	R49 blown Attic STD baffled (Code Baseline, Option 1.1-1.4)	10-7	0.027		1,055	28.5
				Sum of Area and UA	1,055	28.5

Walls (Above Grade) Plan Component Wall ID Description Ref. U Net Area UA 10-5 0.054 R21 cavity+R0 foam INT 2X6W Lap (Code Baseline) 1,291 70 Sum of Area and UA 1,291 70

 Floor (over crawl or exterior)
 Floor
 UA

 Plan
 Component
 Ref.
 U
 VA

 ID
 Description
 Ref.
 U
 Area

 No floors in thermal envelope
 NA
 0
 0

 ID
 ID

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

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

Ventilation Requirements	
Number of Bedrooms	i <u>2</u>
Run-Time Percent in Each 4-Hour Segment	nt <u>100%</u>
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	n IMC, Section 403
Whole House Mechanical Ventilation Airflow Rate	e 70 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 Due	t Testing Required? No	

nks to Download Forms, Checklists and Other Resources	Link	
Compliance Certificate	Compliance Certificate	Instructions
Insulation Certificate for Residential New Construction	Insulation Certificate	
Duct Testing Affadavits		
Existing Constru	uction Affidavit, Existing	
New Constru	uction 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 (∆T)	51 F
Conditioned Floor Area, Proposed Design	1,055 ft2
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	8,968 ft3
HVAC System Type	Heat Pump
Location of HVAC Distribution System	Unducted
Sum of UA, including exempt door and window	137
Envelope Heat Load Sum of UA X ΔT	6,997 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	4,939 Btu / Hour
Building Design Heat Load Air Leakage + Envelope Heat Loss	11,937 Btu / Hour
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	11,937 Btu / Hour
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1	
Maximum Heat Equipment Output Building and Duct Heat Loss X 1.25 for heat pumps	14,921 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	

Project Information	Messages / Results *
East Town Crossing Unit 304	
Building E	
Pioneer & Shaw, Puyallup	UA Reduction = 2.71, Proposed UA is better than baseline by 2%
Contact Information	
Synthesis 9, LLC	
Brett Lindsay	
blindsay@synthesis9.com	Whole House Mechanical Ventilation Airflow Rate: 70 CFM with Run Time Percent of 100%, Balanced, Distributed
253-468-4117	
	* 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 R2 Multifamily Occupancy Type? Code Version? WSEC 2018 Classification: Small Dwelling Unit -- 1005 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

Component Performance, R occupancies		Baseline		Pr	oposed Desi	gn	
	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	
Vertical Glazing U =	0.300	90	27.0	0.300	90	27.0	
Flat/Vaulted Ceilings U =	0.027	1,005	27.1	0.027	1,005	5 27.1	
Wall (above grade) U =	0.056	1,353	75.8	0.054	1,353	73.0	
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	
Below Grade Slab F =	0.570	0	0.0		(0.0	
		_					
	Baseli	ne UA Total	141.9	Propo	sed UA Tota	139.2	
	Requ	ired Credits	4.5	Prop	osed Credits	7.0 f	rom Tables 406.2 and 40
				UA Perce	nt Reduction	1.9%	
					JA Reduction	2.7	

Table R4	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	6.0	7.0				

Table R4	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		Option 2.2	1.5	2.0 ACH50 / Heat Recovery Ventilation min eff 65% / For R2, 0.25 cfm per ft2 at 50 Pa / HRV with min SHR eff of 0.65				
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		kWh		0.0				
7	Appliance Package			0.0					
		Energy Credits	6.0						

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

Conditioned Floor Area, Proposed Design	n 1,005 sq. ft
Classification	n Small Dwelling Unit
Notes	IS IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII

Exterior	Doors									
Plan	Component		Door		Wio	ith	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt									0	0.0
304A	Code Baseline, U=0.30	-	0.30	1	3	0	6	8	20	6.0
304B	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
Sum of Area and UA 40 12.0										
Exterior Doors Area Weighted U 0.300										

Overhea	d Glazing										
Plan	Component		Glazing		Wie	dth	He	eight			
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA	
									0		
									0		
									0		
									0		
									0		
Sum of Area and UA 0 0											
Overhead Glazing Area Weighted U											

Vertical Glazing Schedule Rows to Show a										3
Plan	Component		Glazing		Wio	dth	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt			-						-	-
1 1	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	5	0	30.0	9.00
2 2	U=0.30 (Code Baseline)	Table 406.2	0.30	2	3	0	5	0	30.0	9.00
3 4	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	5	0	30.0	9.00
Sum of Area and UA 90.0								27.0		
Vertical Glazing Area Weighted U							0.300			

Vertical Glazing and Doors Area Weighted U

Flat/Vaulted Ceilings									
Plan	Component		Attic						
ID	Description	Ref.	U		Area	UA			
	R49 blown Attic STD baffled (Code Baseline, Option 1.1-1.4)	10-7	0.027		1,005	27.1			
				Γ					

Sum of Area and UA 1,005 27.1

0.300

Plan	Component		Wall			
ID	Description	Ref.	U		Net Area	UA
	R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,353	73
		•		Sum of Area and UA	1,353	73

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

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

Below Gr	ade Walls and Slabs								
Plan	Component		Wall	Wall	Wall	Slab		Slab	
ID	Description	Ref.	U	Area	UA	F	Slab Perim	UA	
Sum of Area, Length and U				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	70 CFM

HVAC Thermal Distribution System	Download RS-33 (2018) http://www.ene	rgy.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 De	ct 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 Affadavits		
Existing Construction	Affidavit, Existing	
New Construction	Affidavit, New	
Prescriptive Checklist for 2018 WSEC	Prescriptive Checklist	
Alterations (Remodel) Worksheet	Worksheet	

Heating System Sizing - Proposed Design	y Out BetterBuiltNW's HVAC Sizing Tool: https://be	tterbuiltnw.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	1,005 ft2	
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	8,543 ft3	
HVAC System Type	Heat Pump	
Location of HVAC Distribution System	Unducted	-
Sum of UA, including exempt door and window	139	
Envelope Heat Load Sum of UA X ∆T	7,098 Btu / Hour	
Air Leakage Heat Load ((Volume X 0.6) X ΔT) X.018))	4,705 Btu / Hour	
Building Design Heat Load Air Leakage + Envelope Heat Loss	11,803 Btu / Hour	
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	11,803 Btu / Hour	
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1		
Maximum Heat Equipment Output Building and Duct Heat Loss X 1.25 for heat pumps Building and Duct Heat Loss X 1.40 for all other systems	14,754 Btu / Hour	
······································		

Project Information	Messages / Results *
East Town Crossing Unit 305	
Building E	
Pioneer & Shaw, Puyallup	UA Reduction = 2.58, Proposed UA is better than baseline by 2%
Contact Information	
Synthesis 9, LLC	
Brett Lindsay	
blindsay@synthesis9.com	Whole House Mechanical Ventilation Airflow Rate: 70 CFM with Run Time Percent of 100%, Balanced, Distributed
253-468-4117	
	* Results assume your inputs are complete and correct. Results do not constitute an approval. Analysis should be reviewed by your AHJ.

 What code compliance pathway are you using?
 Prescriptive Path Compliance with Option 1 (preferred)
 Project Building Type? Occupancy Type? Code Version? WSEC 2018

New Construction R2 Multifamily Classification: Small Dwelling Unit -- 1055 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

Component Performance, R occupancies		Baseline			Pr	oposed Desig	gn	
	U	Area	UA		U	Area	UA	
Doors U =	0.300	40	12.0	1	0.300	40	12.0	
Overhead Glazing U =	0.500	0	0.0			0	0.0	
Vertical Glazing U =	0.300	90	27.0		0.300	90	27.0	
Flat/Vaulted Ceilings U =	0.027	1,055	28.5		0.027	1,055	28.5	
Wall (above grade) U =	0.056	1,291	72.3		0.054	1,291	69.7	
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	
	Baseli	ne UA Total	139.8		Propo	sed UA Total	137.2	
	Requ	ired Credits	4.5		Prop	osed Credits	7.0	from Tables
					UA Perce	nt Reduction	1.00/	
					1	JA Reduction	2.6	

Table R	406.2 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	6.0	7.0

Table R4	06.3 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		Option 2.2	1.5	2.0 ACH50 / Heat Recovery Ventilation min eff 65% / For R2, 0.25 cfm per ft2 at 50 Pa / HRV with min SHR eff of 0.65
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	kWh		0.0	
7	Appliance Package			0.0	
			Energy Credits	6.0	

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

Conditioned Floor Area, Proposed Design	1,055 sq. ft
Classification Small D	welling Unit
Notes	

Exterior	Doors									
Plan	Component		Door		Wio	dth	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt									0	0.0
305A	Code Baseline, U=0.30	-	0.30	1	3	0	6	8	20	6.0
305B	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
						Sum	of Are	a and UA	40	12.0
					Exterior	r Doors A	Area We	ighted U		0.300

Ov	erhead	d Glazing										
F	Plan	Component		Glazing		Wie	ith	He	eight			
	ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA	
										0		
										0		
										0		
										0		
										0		
_							Sum	of Are	a and UA	0	0	0
					c	verhead (Glazing A	Area We	ighted U			

Vertical Glazing Schedule Rows to Show 2							2									
Plan	Component		Glazing		Glazing		Glazing		Glazing		Width		He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA						
Exempt			-						-	-						
1	U=0.30 (Code Baseline)	Table 406.2	0.30	2	6	0	5	0	60.0	18.00						
2 3	U=0.30 (Code Baseline)	Table 406.2	0.30	1	5	0	6	0	30.0	9.00						
						Sum	of Are	a and UA	90.0	27.0						
					Vertical	Glazing (area We	inhted II		0 300						

Vertical Glazing and Doors Area Weighted U

0.300

Flat/Vaul	ted Ceilings					
Plan	Component		Attic			
ID	Description	Ref.	U		Area	UA
	R49 blown Attic STD baffled (Code Baseline, Option 1.1-1.4)	10-7	0.027		1,055	28.5
				Sum of Area and UA	1,055	28.5

Walls (Above Grade) Plan ID Component Wall Description Ref. U Net Area UA 21 cavity 10-5 0.054 1,291 70 INT 2X6W Lap (Code Baseline) Sum of Area and UA 1,291 70

	er crawl or exterior)						
an	Component		Floor			UA	1
D	Description	Ref.	U		Area		1
	No floors in thermal envelope	NA	-			0	
							1
							1
				Sum of Area and UA	0	0	
)	D Description	D Description Ref.	D Description Ref. U	D Description Ref. U No floors in thermal envelope NA - Image: Imag	D Description Ref. U Area	D Description Ref. U Area No floors in thermal envelope NA - Image: Construction of the mail envelope Image: Construction of the mail envelope Image: Construction of the mail envelope Image: Construction of the mail envelope Image: Construction of the mail envelope Image: Construction of the mail envelope Image: Construction of the mail envelope Image: Construction of the mail envelope Image: Construction of the mail envelope Image: Construction of the mail envelope Image: Construction of the mail envelope Image: Construction of the mail envelope Image: Construction of the mail envelope Image: Construction of the mail envelope Image: Construction of the mail envelope Image: Construction of the mail envelope Image: Construction of the mail envelope Image: Construction of the mail envelope Image: Construction of the mail envelope Image: Construction of the mail envelope Image: Construction of the mail envelope Image: Construction of the mail envelope Image: Construction of the mail envelope Image: Construction of the mail envelope Image: Construction of the mail envelope Image: Construction of the mail envelope Image: Con

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

Below Gr	ade Walls and Slabs								
Plan	Component		Wall	Wall	Wall	Slab		Slab	
ID	Description	Ref.	U	Area	UA	F	Slab Perim	UA	
Sum of Area, Length and U			ngth 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	70 CFM

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

nks to Download Forms, Checklists and Other Resources	Link	
Compliance Certificate	Compliance Certificate	Instructions
Insulation Certificate for Residential New Construction	Insulation Certificate	
Duct Testing Affadavits		
Existing Constru	uction Affidavit, Existing	
New Constru	uction 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 (∆T)	51 F
Conditioned Floor Area, Proposed Design	1,055 ft2
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	8,968 ft3
HVAC System Type	Heat Pump
Location of HVAC Distribution System	Unducted
Sum of UA, including exempt door and window	137
Envelope Heat Load Sum of UA X ∆T	6,996 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	4,939 Btu / Hour
Building Design Heat Load Air Leakage + Envelope Heat Loss	11,936 Btu / Hour
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	11,936 Btu / Hour
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1	
Maximum Heat Equipment Output Building and Duct Heat Loss X 1.25 for heat pumps	14,919 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	

Project Information	Messages / Results *
East Town Crossing Unit 306	
Building E	
Pioneer & Shaw, Puyallup	UA Reduction = 2.71, Proposed UA is better than baseline by 2%
Contact Information	
Synthesis 9, LLC	
Brett Lindsay	
blindsay@synthesis9.com	Whole House Mechanical Ventilation Airflow Rate: 70 CFM with Run Time Percent of 100%, Balanced, Distributed
253-468-4117	
	* 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 R2 Multifamily Occupancy Type? Code Version? WSEC 2018 Classification: Small Dwelling Unit -- 1005 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

Component Performance, R occupancies		Baseline		P	roposed Desi	gn	
	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	
Vertical Glazing U =	0.300	90	27.0	0.300	90	27.0	
Flat/Vaulted Ceilings U =	0.027	1,005	27.1	0.027	1,005	5 27.1	
Wall (above grade) U =	0.056	1,353	75.8	0.054	1,353	3 73.0	
Floors over Crawlspace U =	0.029	0	0.0		(0.0	
Slab on Grade F =	0.540	0	0.0		(0.0	
Below Grade Wall U =	0.042	0	0.0		(0.0	
Below Grade Slab F =	0.570	0	0.0		(0.0	
		_					
	Baseli	ne UA Total	141.9	Prop	osed UA Tota	139.2	
Required Credits			4.5	Proj	Proposed Credits		om Tables 406.2 and 406
				UA Perc	ent Reductior	1.9%	
					UA Reduction	2.7	

Table R4	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	6.0	7.0			

Table R4	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			Option 2.2	1.5	2.0 ACH50 / Heat Recovery Ventilation min eff 65% / For R2, 0.25 cfm per ft2 at 50 Pa / HRV with min SHR eff of 0.65		
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		kWh		0.0			
7	Appliance Package				0.0			
				Energy Credits	6.0			

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

Conditioned Floor Area, Proposed Design	n 1,005 sq. ft				
Classification Small Dwelling Unit					
Notes					

Exterior	Doors									
Plan	Component		Door		Wio	ith	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt									0	0.0
306A	Code Baseline, U=0.30	-	0.30	1	3	0	6	8	20	6.0
306B	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
						Sum	of Are	a and UA	40	12.0
Exterior Doors Area Weighted U									0.300	

Overhea	d Glazing										
Plan	Component		Glazing		Wie	dth	He	eight			
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA	
									0		
									0		
									0		
									0		
									0		
Sum of Area and UA									0	0	D
Overhead Glazing Area Weighted I								ighted U			

Vertical Glazing Schedule Rows to Show 3										3
Plan	Component		Glazing		Wio	dth	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt			-						-	-
1 1	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	5	0	30.0	9.00
2 2	U=0.30 (Code Baseline)	Table 406.2	0.30	2	3	0	5	0	30.0	9.00
3 4	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	5	0	30.0	9.00
						Sum	of Area	a and UA	90.0	27.0
					Vertical (Glazing A	rea We	iahted U		0.300

Vertical Glazing and Doors Area Weighted U

Flat/Vault	Flat/Vaulted Ceilings								
Plan	Component		Attic						
ID	Description	Ref.	U		Area	UA			
	R49 blown Attic STD baffled (Code Baseline, Option 1.1-1.4)	10-7	0.027		1,005	27.1			
				Sum of Area and UA	1,005	27.1			

0.300

Plan	Component		Wall			
ID	Description	Ref.	U		Net Area	UA
	R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,353	73
				Sum of Area and UA	1,353	73

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

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

Bel	Below Grade Walls and Slabs										
F	Plan	Component		Wall	Wall	Wall	Slab		Slab		
	ID	Description	Ref.	U	Area	UA	F	Slab Perim	UA		
		Sum	ngth and UA	0	0.0		0	0	J		

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	70 CFM

HVAC Thermal Distribution System	Download RS-33 (2018) http://www.ene	rgy.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 Affadavits		
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	YOut 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 (∆T)	51 F	
Conditioned Floor Area, Proposed Design	1,005 ft2	
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	8,543 ft3	
HVAC System Type	Heat Pump	
Location of HVAC Distribution System	Unducted	
Sum of UA, including exempt door and window	139	
Envelope Heat Load Sum of UA X ∆T	7,098 Btu / Hour	
Air Leakage Heat Load ((Volume X 0.6) X ΔT) X .018))	4,705 Btu / Hour	
Building Design Heat Load Air Leakage + Envelope Heat Loss	11,803 Btu / Hour	
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	11,803 Btu / Hour	
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1		
Maximum Heat Equipment Output Building and Duct Heat Loss X 1.25 for heat pumps	14,754 Btu / Hour	
Building and Duct Heat Loss X 1.40 for all other systems		

Project Information	Messages / Results *
East Town Crossing Unit 307	
Building E	
Pioneer & Shaw, Puyallup	UA Reduction = 2.7, Proposed UA is better than baseline by 2%
Contact Information	
Synthesis 9, LLC	
Brett Lindsay	
blindsay@synthesis9.com	Whole House Mechanical Ventilation Airflow Rate: 70 CFM with Run Time Percent of 100%, Balanced, Distributed
253-468-4117	
	* 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 -- 1193 sq. ft. Code 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

Component Performance, R occupancies		Baseline			Proposed Desig	gn	
	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		C	0.0	
Vertical Glazing U =	0.300	128	38.3	0.300	128	38.3	
Flat/Vaulted Ceilings U =	0.027	1,193	32.2	0.027	1,193	32.2	
Wall (above grade) U =	0.056	1,350	75.6	0.054	1,350	72.9	
Floors over Crawlspace U =	0.029	0	0.0		C	0.0	
Slab on Grade F =	0.540	0	0.0		C	0.0	
Below Grade Wall U =	0.042	0	0.0		C	0.0	
Below Grade Slab F =	0.570	0	0.0		C	0.0	
	Baseli	ne UA Total	158.0	Pro	posed UA Tota	155.3	
	Requ	ired Credits	4.5	Pi	oposed Credits	7.0 f	from Tables 406.2 and 4
				UA Pe	rcent Reduction	1.7%	
					UA Reduction	2.7	

Table R	406.2 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	6.0	7.0

Table R406.3 Energy Credits											
Option No.	Category			Select Options	Energy Credits	Brief Description of Selected Options*					
1	Efficient Building Envelope	velope			0.0						
2	Air Leakage Control and Efficient Ventilation	ge Control and Efficient Ventilation			1.5	2.0 ACH50 / Heat Recovery Ventilation min eff 65% / For R2, 0.25 cfm per ft2 at 50 Pa / HRV with min SHR eff of 0.65					
3	High Efficiency HVAC			Option 3.4	2.0	Ductless Split System, Zonal Control. Min HSPF of 10.					
4	gh 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	k	kWh		0.0						
7	7 Appliance Package				0.0						
				Energy Credits	6.0						

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

Conditioned Floor Area, Proposed Design	1,193	sq. ft					
Classification Small Dwelling Unit							
Notes							

Exterior	Doors									
Plan	Component		Door		Wio	ith	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt									0	0.0
307A	Code Baseline, U=0.30	-	0.30	1	3	0	6	8	20	6.0
307B	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
						Sum	of Area	a and UA	40	12.0
					Exterior	Doors A	Area We	ighted U		0.300

Overhea	d Glazing										
Plan	Component		Glazing		Wie	dth	He	eight			
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA	
									0		
									0		
									0		
									0		
									0		
Sum of Area and UA											1
				c	verhead (Glazing A	Area We	ighted U			

Plan	Component		Glazing		Wic	ith	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt			-						-	-
1	U=0.30 (Code Baseline)	Table 406.2	0.30	2	6	0	5	0	60.0	18.00
2	U=0.30 (Code Baseline)	Table 406.2	0.30	2	3	0	5	0	30.0	9.00
4	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	5	0	30.0	9.00
5	U=0.30 (Code Baseline)	Table 406.2	0.30	1	2	6	3	0	7.5	2.25
						Sum	of Area	a and UA	127.5	38.3
Vertical Glazing Area Weighted U										0.300
				Vertical G	lazing and	Doors A	rea We	ighted U		0.300

I	Flat/Vault	ed Ceilings					
	Plan	Component		Attic			
	ID	Description	Ref.	U		Area	UA
		R49 blown Attic STD baffled (Code Baseline, Option 1.1-1.4)	10-7	0.027		1,193	32.2
Γ							
Γ							
Γ							
					Sum of Area and UA	1,193	32.2

Plan	Component		Wall			
ID	Description	Ref.	U		Net Area	UA
	R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,350	73
	·			Sum of Area and UA	1,350	73

Floor (ov	er crawl or exterior)						
Plan	Component		Floor			UA	
ID	Description	Ref.	U		Area		
	No floors in thermal envelope	NA	-			0	
							1
				Sum of Area and UA	0	0	

	Slab on Grade (less than 2 feet below grade)												
	Plan	Component		Slab									
	ID	Description	Ref.	F		Slab Perim	FP						
ł		No slab on grade	NA	-			0						
ł													
					Sum of Perimeter and FP	0	0	1					

Below Gr	ade Walls and Slabs								
Plan	Component		Wall	Wall	Wall	Slab		Slab	
ID	Description	Ref.	U	Area	UA	F	Slab Perim	UA	
	Sum	of Area, Ler	ngth and UA	0	0.0		0	0	

Ventilation Requirements	
Number of Bedrooms	3
Run-Time Percent in Each 4-Hour Segment	t <u>100%</u>
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	70 CFM

HVAC Thermal Distribution System	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 Require	ed? No	_

Compliance Certificate Compliance Certificate Instructions Insulation Certificate for Residential New Construction Insulation Certificate Instructions Duct Testing Affadavits Existing Construction Affidavit. Existing Instructions New Construction Affidavit, New New Construction Affidavit, New Prescriptive Checklist for 2018 WSEC Prescriptive Checklist
Duct Testing Affadavits Existing Construction Affidavit, Existing New Construction Affidavit, New
Existing Construction Affidavit, Existing New Construction Affidavit, New
New Construction Affidavit, New
Proscriptive Checklist for 2018 WSEC
Alterations (Remodel) Worksheet Worksheet

Heating System Sizing - Proposed Design Try C	Out BetterBuiltNW's HVAC Sizing Tool: https://bet	tterbuiltnw.com/resources/hvac-sizing-tool
Nearest Weather Station	Puyallup	
Indoor Design Temperature	70 F	
Outdoor Design Temperature	19 F	
Design Temperature Difference (∆T)	51 F	
	4 400 50	
Conditioned Floor Area, Proposed Design	1,193 ft2	
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	10,141 ft3	
HVAC System Type	Heat Pump	1
Location of HVAC Distribution System	Unducted	
Location of HVAC Distribution System	Unducted	
Sum of UA, including exempt door and window	155	
Envelope Heat Load Sum of UA X ΔT	7,922 Btu / Hour	
Air Leakage Heat Load ((Volume X 0.6) X ΔT) X .018))	5,585 Btu / Hour	
Building Design Heat Load Air Leakage + Envelope Heat Loss	13,507 Btu / Hour	
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	13,507 Btu / Hour	
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1		
Maximum Heat Equipment Output Building and Duct Heat Loss X 1.25 for heat pumps	16,884 Btu / Hour	
Building and Duct Heat Loss X 1.40 for all other systems		

Project Information	Messages / Results *
East Town Crossing Unit 308	
Building E	
Pioneer & Shaw, Puyallup	UA Reduction = 2.86, Proposed UA is better than baseline by 2%
Contact Information	
Synthesis 9, LLC	
Brett Lindsay	
blindsay@synthesis9.com	Whole House Mechanical Ventilation Airflow Rate: 70 CFM with Run Time Percent of 100%, Balanced, Distributed
253-468-4117	
	* Results assume your inputs are complete and correct. Results do not constitute an approval. Analysis should be reviewed by your AHJ.

 What code compliance pathway are you using?
 Prescriptive Path Compliance with Option 1 (preferred)
 Project Building Type? New Construction Occupancy Type? Code Version? WSEC 2018

R2 Multifamily Classification: Small Dwelling Unit -- 1123 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

Component Performance, R occupancies		Baseline		Pro	posed Desig	jn	
	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	150	45.0	0.300	150	45.0	
Flat/Vaulted Ceilings U =	0.027	1,123	30.3	0.027	1,123	30.3	
Wall (above grade) U =	0.056	1,429	80.0	0.054	1,429	77.2	
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	
		_					
	Baseli	ne UA Total	167.4	Propo	sed UA Total	164.5	
	Requ	ired Credits	4.5	Propo	osed Credits	7.0	from Tables 406.2 and 406.
				UA Perce	nt Reduction	1.7%	
				U	A Reduction	2.9	

Table R4	406.2 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	6.0	7.0

Table R4	406.3 Energy Credits				
Option No.	Category		Select Options	Energy Credits	Brief Description of Selected Options*
1	1 Efficient Building Envelope			0.0	
2	2 Air Leakage Control and Efficient Ventilation			1.5	2.0 ACH50 / Heat Recovery Ventilation min eff 65% / For R2, 0.25 cfm per ft2 at 50 Pa / HRV with min SHR eff of 0.65
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 kWh			0.0	
7	Appliance Package			0.0	
			Energy Credits	6.0	

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

Conditioned Floor Area, Proposed Design	1,123	sq. ft						
Classification Small Dwelling Unit								
Notes								

Exterior	Doors									
Plan	Component		Door		Wio	ith	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt									0	0.0
308A	Code Baseline, U=0.30	-	0.30	1	3	0	6	8	20	6.0
308B	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
						Sum	of Are	a and UA	40	12.0
					Exterior	Doors A	Area We	ighted U		0.300

Overhea	d Glazing	•					•			
Plan	Component		Glazing		Wie	dth	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
									0	
									0	
									0	
									0	
									0	
						Sum	of Area	a and UA	0	0
				c	verhead	Glazing A	Area We	ighted U		

Vertical Glazing Schedule Rows to Show 2								2			
	Plan	Component		Glazing		Wie	dth	He	eight		
	ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
	Exempt			-						-	-
1	1	U=0.30 (Code Baseline)	Table 406.2	0.30	4	6	0	5	0	120.0	36.00
2	4	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	5	0	30.0	9.00
	Sum of Area and UA 150.0						45.0				
Vertical Glazing Area Weighted U						0.300					
					Vertical G	lazing and	Doors A	Area We	ighted U		0.300

Vortioui	Oluzing	o Alcu III	ignica o

Flat/Vaulted Ceilings Plan Component Attic								
ID	Description	Ref.	U		Area	UA		
	R49 blown Attic STD baffled (Code Baseline, Option 1.1-1.4)	10-7	0.027		1,123	30.3		
				Sum of Area and UA	1,123	30.3		

Walls (Above Grade)								
Plan	Component		Wall					
ID	Description	Ref.	U		Net Area	UA		
	R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,429	77		
Sum of Area and UA 1,429 77								

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

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

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

Ventilation Requirements	
Number of Bedrooms	3
Run-Time Percent in Each 4-Hour Segment	t <u>100%</u>
Is the system Balanced?	Palanced Verify system meets definition of 'Balanced Whole-House Ventilation'
Is the system Distributed?	? Distributed Whole-House Ventilation'
Ventilation Code Section	n IMC, Section 403
Whole House Mechanical Ventilation Airflow Rate	e 70 CFM

HVAC Thermal Distribution System	Do	Download RS-33 (2018) http://www.energy.wsu.edu/Documents/Duct%20Testing%20Standards%2				
Is this a hydronic heating system?	No					
Location of Ducts	Und	ducted				
Location of Air Handler	Unc	conditioned Space				
Is Duct Testing Required? No						

nks to Download Forms, Checklists and Other Resources	Link	
Compliance Certificate	Compliance Certificate	Instructions
Insulation Certificate for Residential New Construction	Insulation Certificate	
Duct Testing Affadavits		
Existing Constru	uction Affidavit, Existing	
New Constru	uction 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 (∆T)	51 F
Oranditioned Floor Area Dranned Design	4.400 #0
Conditioned Floor Area, Proposed Design	1,123 ft2
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	9,546 ft3
HVAC System Type	Heat Pump
Location of HVAC Distribution System	Unducted
Sum of UA, including exempt door and window	165
Envelope Heat Load Sum of UA X ΔT	8,390 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	5,258 Btu / Hour
Building Design Heat Load Air Leakage + Envelope Heat Loss	13,647 Btu / Hour
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	13,647 Btu / Hour
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1	
Maximum Heat Equipment Output Building and Duct Heat Loss X 1.25 for heat pumps	17,059 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	