Project Information	Messages / Results *
East Town Crossing, Unit # 101	
Building B	
Pioneer & Shaw, Puyallup	UA Reduction = 2.61, 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 1109 sq. ft.
Baseline Description:	Code Baseline - Baseline and proposed window areas are equal.
About Your Selection:	Up to 15 sf exempt window and 24 sf exempt door allowable

RESULTS - Comparison of Baseline and Proposed Design								
Component Performance, R occupancies		Baseline			Pre	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	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	1,307	73.2		0.054	1,307	70.6	
Floors over Crawlspace U =	0.029	0	0.0			0	0.0	
Slab on Grade F =	0.540	146	78.8		0.540	146	78.8	
Below Grade Wall U =	0.042	0	0.0			0	0.0	
Below Grade Slab F =	0.570	0	0.0			0	0.0	
		_						
	Basel	ine UA Total	202.3		Propo	sed UA Total	199.7	
	Requ	ired Credits	4.5		Prope	osed Credits	6.5	from Tables 406.2 and 406.3
		_			UA Perce	nt Reduction	1.3%	
					ι	JA Reduction	2.6	
If the Proposed IIA < the Target IIA, and the Proposed Credits from Table 40)6 are > tho	se required in	Section R40	6 then the home	meets the WSE(

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	5.5	6.5

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			0.0	
3	High Efficiency HVAC		Option 3.6	3.0	Ductless Split System with no electric resistance in primary living areas
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	5.5	

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

Conditioned Floor Area, Proposed Design 1,109 sq. ft	
Classification Small Dwelling Unit	
Notes	

Exterior	Doors									
Plan	Component		Door		Wic	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	C	6	8	20	6.0
101B	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 Area	a and UA	40	12.0
					Exterior	r Doors /	Area We	iahted U		0.300

Overhea	d Glazing										
Plan	Component		Glazing		Wio	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	,
				C	verhead (Glazing A	Area We	ighted U			

Vertical 0	Glazing Schedule							Ro	ws to Show	4
Plan	Component		Glazing		Wic	lth	He	ight		
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	4	0	72.0	21.60
2 4	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	6	0	36.0	10.80
5	U=0.30 (Code Baseline)	Table 406.2	0.30	1	2	6	3	0	7.5	2.25
6	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	2	0	12.0	3.60
Sum of Area and UA								127.5	38.3	
Vertical Glazing Area Weighted U								ighted U		0.300
				Vertical G	lazing and	Doors A	rea We	ighted 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		1,307	71	
				Sum of Area and UA	1,307	71	

	loor (ove	er crawl or exterior)						
	Plan	Component		Floor			UA	
	ID	Description	Ref.	U		Area		
						ĺ		
Γ						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	
		R10 2' vertical (Code Baseline)	10-2	0.540		146	79	
Sum of Perimeter and FP								

	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	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	Conditioned Space	
Is Duct Testing Requir	ed? 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	tion Affidavit, Existing	
New Construct	tion 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	1,109 ft2	
Conditioned Volume	9,427 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	200	
Envelope Heat Load Sum of UA X ∆T	10,183 Btu / Hour	
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	5,192 Btu / Hour	
Building Design Heat Load Air Leakage + Envelope Heat Loss	15,375 Btu / Hour	
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	15,375 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	19,219 Btu / Hour	
Building and Duct Heat Loss X 1.40 for all other systems		

Project Information	Messages / Results *
East Town Crossing, Unit #102	
Building B	
Pioneer & Shaw, Puyallup	UA Reduction = 2.79, 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.

 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 -- 1061 sq. ft. Baseline Description: Code Baseline - Baseline and proposed window areas are equal.

About Your Selection: Up to 15 sf exempt window and 24 sf exempt door allowable

RESULTS - Comparison of Baseline and Proposed Design								
Component Performance, R occupancies		Baseline			Pro	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	91	27.4		0.300	91	27.4	
Flat/Vaulted Ceilings U =	0.027	0	0.0			0	0.0	
Wall (above grade) U =	0.056	1,397	78.2		0.054	1,397	75.4	
Floors over Crawlspace U =	0.029	0	0.0			0	0.0	
Slab on Grade F =	0.540	151	81.7		0.540	151	81.7	
Below Grade Wall U =	0.042	0	0.0			0	0.0	
Below Grade Slab F =	0.570	0	0.0			0	0.0	
	Basel	ine UA Total	199.3		Propo	sed UA Total	196.5	
	Requ	ired Credits	4.5		Prope	osed Credits	6.5	from Tables 406.2 and 406.3
		_			UA Perce	nt Reduction	1.4%	
					ι	IA Reduction	2.8	
If the Proposed LIA < the Target LIA, and the Proposed Credits from Table //)6 ara > tha	ee required in	Section P40	6 than the home	monte the WSE			

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	5.5	6.5

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			0.0	
3	High Efficiency HVAC		Option 3.6	3.0	Ductless Split System with no electric resistance in primary living areas
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	5.5	

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

Conditioned Floor Area, Proposed Design	gn 1,061 sq. ft
Classification	n Small Dwelling Unit
Notes	es

Exterior	Doors									
Plan	Component		Door		Wic	dth	He	ight		
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	C	6	8	20	6.0
102B	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 Area	a and UA	40	12.0
Exterior Doors Area Weighted U									0.300	

Overl	ead Glazing										
Pla	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 L							a and UA	0	0		
				C	verhead (Glazing A	rea We	ighted U			

Vertical Glazing Schedule Rows to Show 3								3		
Plan	Component		Glazing		Wic	lth	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt			-						-	-
1 2	U=0.30 (Code Baseline)	Table 406.2	0.30	3	4	6	3	6	47.3	14.18
2 3	U=0.30 (Code Baseline)	Table 406.2	0.30	1	5	0	6	0	30.0	9.00
3 7	U=0.30 (Code Baseline)	Table 406.2	0.30	1	7	0	2	0	14.0	4.20
Sum of Area and UA 91.3							91.3	27.4		
Vertical Glazing Area Weighted U							0.300			
				Vertical G	lazing and	Doors A	rea We	ighted U		0.300

Vertical	Glazing	and Doors	s Area	Weighted L	J

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		

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		1,397	75
Γ							
					Sum of Area and UA	1,397	75

Floor (ove	er crawl or exterior)						
Plan	Component		Floor			UA	
ID	Description	Ref.	U		Area		
		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		151	82		
Sum of Perimeter and FP						82		

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	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	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	1,061 ft2
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	9,019 ft3
HVAC System Type	Heat Pump
Location of HVAC Distribution System	Unducted
Sum of UA, including exempt door and window	197
Envelope Heat Load Sum of UA X AT	10,022 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	4,967 Btu / Hour
Building Design Heat Load Air Leakage + Envelope Heat Loss	14,989 Btu / Hour
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	14,989 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	18,737 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	

Project Information	Messages / Results *
East Town Crossing, Unit # 103	
Building B	
Pioneer & Shaw, Puyallup	UA Reduction = 2.54, 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.

 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 -- 1008 sq. ft. Baseline Description: Code Baseline - Baseline and proposed window areas are equal.

About Your Selection: Up to 15 sf exempt window and 24 sf exempt door allowable

RESULTS - Comparison of Baseline and Proposed Design								
Component Performance, R occupancies		Baseline			Pro	oposed Desig	ın	
	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	78	23.4		0.300	78	23.4	
Flat/Vaulted Ceilings U =	0.027	0	0.0			0	0.0	
Wall (above grade) U =	0.056	1,271	71.2		0.054	1,271	68.6	
Floors over Crawlspace U =	0.029	0	0.0			0	0.0	
Slab on Grade F =	0.540	138	74.3		0.540	138	74.3	
Below Grade Wall U =	0.042	0	0.0			0	0.0	
Below Grade Slab F =	0.570	0	0.0			0	0.0	
	Basel	ine UA Total	180.8		Propo	sed UA Total	178.3	
SULTS - Comparison of Baseline and Proposed Design U Component Performance, R occupancies U Doors U = 0.300 Overhead Glazing U = Overhead Glazing U = Overhead Glazing U = Vertical Glazing U = 0.027 Wall (above grade) U = Vertical Glazing U = Vertical Glazing U = Slab on Grade F = O.570 Baseline Required Vertical G	ired Credits	4.5		Prope	osed Credits	6.5	from Tables 406.2 and 406.3	
		_			UA Perce	nt Reduction	1.4%	
					ι	IA Reduction	2.5	
If the Proposed UA ≤ the Target UA, and the Proposed Credits from Table 40)6 are ≥ tho	se required in	Section R40	6. then the home n	neets the WSEC	3.		

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	5.5	6.5

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			0.0	
3	High Efficiency HVAC		Option 3.6	3.0	Ductless Split System with no electric resistance in primary living areas
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	5.5	

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

Conditioned Floor Area, Proposed Design	1,008 sq. ft							
Classification Small Dwelling Unit								
Notes								

Exterior	Doors									
Plan	Component		Door		Wic	dth	He	ight		
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	C	6	8	20	6.0
103B	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 Area	a and UA	40	12.0
					Exterior	Doors	Area We	iahted 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		1
									0		
Sum of Area and UA										0	5
Overhead Glazing Area Weighted U											

	Vertical	Glazing Schedule							Ro	ws to Show	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	2	6	0	4	0	48.0	14.40
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 78									78.0	23.4	
						Vertical			ighted II		0 200

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

	-

	Flat/Vault	ed Ceilings					
	Plan	Component		Attic			
	ID	Description	Ref.	U		Area	UA
I		No ceiling/roof in thermal envelope	NA	-			0.0
Γ							
Γ							
Γ							
Ĩ					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		1,271	69		
I					Sum of Area and UA	1,271	69		

Floor (ove	er crawl or exterior)						
Plan	Component		Floor			UA	
ID	Description	Ref.	U		Area		
				Sum of Area and UA	0	0	
	Floor (ove Plan ID	Floor (over crawl or exterior) Plan Component ID Description	Floor (over crawl or exterior) Plan Component ID Description Ref.	Floor (over crawl or exterior) Floor Plan Component Ref. ID Description Ref. U Interview Interview Interview Interview Interview Interview Interview Interview Interview Interview Interview Interview Interview Interview	Floor (over crawl or exterior) Floor Plan Component Floor ID Description Ref. U ID Image: Component in the second se	Floor (over crawl or exterior) Floor Floor Area ID Description Ref. U Area IO Output Image: Component on the second on	Floor (over crawl or exterior) Floor Floor UA Plan Component Ref. U Area UA ID Description Ref. U Area UA IO Oescription Ref. U Area IO IO IO Oescription IO IO

S	lab on G	arade (less than 2 feet below grade)					
	Plan	Component		Slab			
	ID	Description	Ref.	F		Slab Perim	FP
Γ		R10 2' vertical (Code Baseline)	10-2	0.540		138	74
					Sum of Perimeter and FP	138	74

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	Conditioned Space	
Is Duct Testing Require	I? 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 Constructio	n <u>Affidavit, Existing</u>	
New Constructio	n <u>Affidavit, New</u>	
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	1.008 ft2
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	8,568 ft3
HVAC System Type	Heat Pump
Location of HVAC Distribution System	Unducted
Sum of UA, including exempt door and window	178
Envelope Heat Load Sum of UA X ∆T	9,092 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	4,719 Btu / Hour
Building Design Heat Load Air Leakage + Envelope Heat Loss	13,811 Btu / Hour
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	13,811 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	17,264 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	

Project Information	Messages / Results *
East Town Crossing, Unit # 104	
Building B	
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: 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 -- 976 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			Pro	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	70	20.9		0.300	70	20.9	
Flat/Vaulted Ceilings U =	0.027	0	0.0			0	0.0	
Wall (above grade) U =	0.056	1,352	75.7		0.054	1,352	73.0	
Floors over Crawlspace U =	0.029	0	0.0			0	0.0	
Slab on Grade F =	0.540	145	78.1		0.540	145	78.1	
Below Grade Wall U =	0.042	0	0.0			0	0.0	
Below Grade Slab F =	0.570	0	0.0			0	0.0	
	Basel	ine UA Total	186.8		Propo	sed UA Total	184.1	
	Requ	ired Credits	4.5		Prop	osed Credits	6.5	from Tables 406.2 and 406.3
					UA Perce	nt Reduction	1.4%	
					ι	JA Reduction	2.7	
If the Proposed UA ≤ the Target UA, and the Proposed Credits from Table 40	06 are ≥ tho	se required in	Section R40	6, then the home r	neets the WSEC	D.		

Table R4	able 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	5.5	6.5			

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				0.0	
3	High Efficiency HVAC			Option 3.6	3.0	Ductless Split System with no electric resistance in primary living areas
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	ĸ١	Wh		0.0	
7 Appliance Package				0.0		
				Energy Credits	5.5	

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

	Conditioned Floor Area, Proposed Design 976 sq. ft							
Classification Small Dwelling Unit								
	Notes							

Exterior	Doors									
Plan	Component		Door		Wic	dth	He	ight		
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	C	6	8	20	6.0
104B	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 Area	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						
					C	verhead	Glazing A	Area We	ighted U			

Vertical Glazing Schedule Rows to Show 3							3				
	Plan	Component		Glazing		Wic	lth	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	4	0	24.0	7.20
2	2	U=0.30 (Code Baseline)	Table 406.2	0.30	1	4	6	3	6	15.8	4.73
3	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 69.8						20.9					
						Vertical (A nuizel	rea We	II hetdai		0 300

Vertical Glazing and Doors Area Weighted U

Flat/Vault	- Iat/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

0.300

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		1,352	73
				Sum of Area and UA	1,352	73

Floor (over 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		145	78	
				Sum of Perimeter and FP	145	78	

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		

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	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	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	976 ft2	
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	8,296 ft3	
HVAC System Type	Heat Pump	
Location of HVAC Distribution System	Unducted	-
Sum of UA, including exempt door and window	184	
Envelope Heat Load Sum of UA X ΔT	9,387 Btu / Hour	
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	4,569 Btu / Hour	
Building Design Heat Load Air Leakage + Envelope Heat Loss	13,956 Btu / Hour	
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	13,956 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	17,445 Btu / Hour	
Building and Duct Heat Loss X 1.40 for all other systems		

Project Information	Messages / Results *
East Town Crossing, Unit # 105	
Building B	
Pioneer & Shaw, Puyallup	UA Reduction = 2.54, 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.

 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 -- 1008 sq. ft. Baseline Description: Code Baseline - Baseline and proposed window areas are equal.

About Your Selection: Up to 15 sf exempt window and 24 sf exempt door allowable

RESULTS - Comparison of Baseline and Proposed Design								
Component Performance, R occupancies		Baseline			Pro	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	78	23.4		0.300	78	23.4	
Flat/Vaulted Ceilings U =	0.027	0	0.0			0	0.0	
Wall (above grade) U =	0.056	1,271	71.2		0.054	1,271	68.6	
Floors over Crawlspace U =	0.029	0	0.0			0	0.0	
Slab on Grade F =	0.540	138	74.3		0.540	138	74.3	
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	180.8		Propo	sed UA Total	178.3	
	Requ	ired Credits	4.5		Propo	osed Credits	6.5	from Tables 406.2 and 406.3
		_			UA Perce	nt Reduction	1.4%	
					U	JA Reduction	2.5	
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 n	neets the WSEC			

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	5.5	6.5

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			0.0	
3	High Efficiency HVAC		Option 3.6	3.0	Ductless Split System with no electric resistance in primary living areas
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	5.5	

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

Conditioned Floor Area, Proposed Design	1,008 sq. ft
Classification	Small Dwelling Unit
Notes	

Exterior	Doors									
Plan	Component		Door		Wic	dth	He	ight		
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	C	6	8	20	6.0
105B	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 Area	a and UA	40	12.0
					Exterior	Doors	Area We	iahted 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		1
									0		
						Sum	of Area	a and UA	0	0	5
				C	verhead (Glazing A	rea 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	2	6	0	4	0	48.0	14.40
2	3	U=0.30 (Code Baseline)	Table 406.2	0.30	1	5	0	6	0	30.0	9.00
							Sum	of Area	a and UA	78.0	23.4
						Vertical			ighted II		0 200

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

-	-

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

۷	Valls (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		1,271	69
I					Sum of Area and UA	1,271	69

Floor (ove	er crawl or exterior)						
Plan	Component		Floor			UA	
ID	Description	Ref.	U		Area		
				Sum of Area and UA	0	0	
	Floor (ove Plan ID	Floor (over crawl or exterior) Plan Component ID Description	Floor (over crawl or exterior) Plan Component ID Description Ref.	Floor (over crawl or exterior) Floor Plan Component Ref. ID Description Ref. U Interview Interview Interview Interview Interview Interview Interview Interview Interview Interview Interview Interview Interview Interview	Floor (over crawl or exterior) Floor Plan Component Floor ID Description Ref. U ID Image: Component in the second se	Floor (over crawl or exterior) Floor Floor Area ID Description Ref. U Area IO Output Image: Component on the second on	Floor (over crawl or exterior) Floor Floor UA Plan Component Ref. U Area UA ID Description Ref. U Area UA IO Oescription Ref. U Area IO IO IO Oescription IO IO

S	lab on G	arade (less than 2 feet below grade)					
	Plan	Component		Slab			
	ID	Description	Ref.	F		Slab Perim	FP
Γ		R10 2' vertical (Code Baseline)	10-2	0.540		138	74
					Sum of Perimeter and FP	138	74

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	igth 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.v	wsu.edu/Documents/Duct%20Testing%20Standards%20
Is this a hydronic heating system?	No	
Location of Ducts	Unducted	
Location of Air Handler	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	1,008 ft2
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	8,568 ft3
HVAC System Type	Heat Pump
Location of HVAC Distribution System	Unducted
Sum of UA, including exempt door and window	178
Envelope Heat Load Sum of UA X ΔT	9,092 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	4,719 Btu / Hour
Building Design Heat Load Air Leakage + Envelope Heat Loss	13,811 Btu / Hour
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	13,811 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	17,264 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	

Project Information	Messages / Results *
East Town Crossing, Unit # 106	
Building B	
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: 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 -- 976 sq. ft. Baseline Description: Code Baseline - Baseline and proposed window areas are equal. About Your Selection: Up to 15 sf exempt window and 24 sf exempt door allowable

RESULTS - Comparison of Baseline and Proposed Design								
Component Performance, R occupancies		Baseline			Pr	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	70	20.9		0.300	70	20.9	
Flat/Vaulted Ceilings U =	0.027	0	0.0			0	0.0	
Wall (above grade) U =	0.056	1,352	75.7		0.054	1,352	73.0	
Floors over Crawlspace U =	0.029	0	0.0			0	0.0	
Slab on Grade F =	0.540	145	78.1		0.540	145	78.1	
Below Grade Wall U =	0.042	0	0.0			0	0.0	
Below Grade Slab F =	0.570	0	0.0			0	0.0	
	Basel	ine UA Total	186.8		Propo	sed UA Total	184.1	
	Requ	ired Credits	4.5		Prop	osed Credits	6.5	from Tables 406.2 and 406.3
		_			UA Perce	nt Reduction	1.4%	
					ι	JA Reduction	2.7	
If the Proposed UA ≤ the Target UA, and the Proposed Credits from Table 40)6 are ≥ tho	se required in	Section R40	6, then the home I	meets the WSE	c.		

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	5.5	6.5

Table R4	06.3 Energy Credits					
Option No.	n No. Category			Select Options	Energy Credits	Brief Description of Selected Options*
1	Efficient Building Envelope				0.0	
2	Air Leakage Control and Efficient Ventilation				0.0	
3	High Efficiency HVAC			Option 3.6	3.0	Ductless Split System with no electric resistance in primary living areas
4	igh Efficiency HVAC Distribution System				NA	
5.1	ifficiency HVAC Distribution System				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	k١	Wh		0.0	
7	Appliance Package				0.0	
				Energy Credits	5.5	

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

Conditioned Floor Area, Proposed Design	n 976 sq. ft				
Classification Small Dwelling Unit					
Notes	s				

Exterior	Doors									
Plan	Component		Door		Wic	dth	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	C	6	8	20	6.0
106B	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 Area	a and UA	40	12.0
					Exterior	Doors	Area We	iahted U		0.300

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

Vertical Glazing Schedule Rows to Show										3	
	Plan	Plan Component Glazing Width Height									
	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	4	0	24.0	7.20
2	2	U=0.30 (Code Baseline)	Table 406.2	0.30	1	4	6	3	6	15.8	4.73
3	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 69.8									20.9	
	Vertical Clazing Area Weighted L									0.300	

Vertical Glazing and Doors Area Weighted U

							6			
Flat/Vault	at/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

0.300

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		1,352	73		
	•			Sum of Area and UA	1,352	73		

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		145	78		
	145	78						

Below Grade Walls and Slabs											
Plan	Component		Wall	Wall	Wall	Slab		Slab			
ID	Description	Ref.	U	Area	UA	F	Slab Perim	UA			
	Sum	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%20Standa						
Is this a hydronic heating system?	No						
Location of Ducts	Unducted						
Location of Air Handler	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	976 ft2
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	8,296 ft3
HVAC System Type	Heat Pump
Location of HVAC Distribution System	Unducted
Sum of UA, including exempt door and window	184
Envelope Heat Load Sum of UA X ∆T	9,387 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X ΔT) X .018))	4,569 Btu / Hour
Building Design Heat Load Air Leakage + Envelope Heat Loss	13,956 Btu / Hour
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	13,956 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	17,445 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	

Project Information	Messages / Results *
East Town Crossing, Unit # 107	
Building B	
Pioneer & Shaw, Puyallup	UA Reduction = 2.61, 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.

 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 -- 1108 sq. ft. Baseline Description: Code Baseline - Baseline and proposed window areas are equal.

About Your Selection: Up to 15 sf exempt window and 24 sf exempt door allowable

RESULTS - Comparison of Baseline and Proposed Design								
Component Performance, R occupancies		Baseline Proposed Des					ın	
	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	130	38.9		0.300	130	38.9	
Flat/Vaulted Ceilings U =	0.027	0	0.0			0	0.0	
Wall (above grade) U =	0.056	1,305	73.1		0.054	1,305	70.5	
Floors over Crawlspace U =	0.029	0	0.0			0	0.0	
Slab on Grade F =	0.540	146	78.8		0.540	146	78.8	
Below Grade Wall U =	0.042	0	0.0			0	0.0	
Below Grade Slab F =	0.570	0	0.0			0	0.0	
		_						
	Basel	ine UA Total	202.8		Propo	sed UA Total	200.2	
	Requ	ired Credits	4.5		Prope	osed Credits	6.5	from Tables 406.2 and 406.3
		_			UA Perce	nt Reduction	1.3%	
					ι	JA Reduction	2.6	
If the Proposed UA ≤ the Target UA, and the Proposed Credits from Table 40)6 are ≥ tho	se required in	Section R40	6. then the home r	neets the WSE	3 .		

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	5.5	6.5					

Table R406.3 Energy Credits										
Option No.	Category		Select Options	Energy Credits	Brief Description of Selected Options*					
1	Efficient Building Envelope			0.0						
2	Air Leakage Control and Efficient Ventilation			0.0						
3	High Efficiency HVAC		Option 3.6	3.0	Ductless Split System with no electric resistance in primary living areas					
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	5.5						

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

Conditioned Floor Area, Proposed Design	1,108 sq. ft
Classification Small D	Owelling Unit
Notes	

Exterior	Doors									
Plan	Component		Door		Wic	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	C	6	8	20	6.0
107B	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 Area and UA 40									12.0	
					Exterior	Doors	Area We	iahted U		0.300

0	erhead	d Glazing										
	Plan	Component		Glazing		Wie	ith	He	eight			
	ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA	
										0		1
										0		1
										0		
										0		
										0		1
							Sum	of Area	a and UA	0	0	,
					C	verhead (Glazing A	rea We	ighted U			

Vertical C	Glazing Schedule							Ro	ws to Show	4
Plan	Component		Glazing		Wic	lth	He	ight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt			-						-	-
1 1	U=0.30 (Code Baseline)	Table 406.2	0.30	3	6	0	4	0	72.0	21.60
2 4	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	6	0	36.0	10.80
3 5	U=0.30 (Code Baseline)	Table 406.2	0.30	1	2	6	3	0	7.5	2.25
17	U=0.30 (Code Baseline)	Table 406.2	0.30	1	7	0	2	0	14.0	4.20
						Sum	of Area	a and UA	129.5	38.9
Vertical Glazing Area Weighted U 0.300										
Vertical Glazing and Doors Area Weighted 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			

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		1,305	70	
							1
				Sum of Area and UA	1,305	70	

	Floor (ov	er crawl or exterior)						
	Plan	Component		Floor			UA	
	ID	Description	Ref.	U		Area		
								1
Sum of Area and UA								i

	Slab on G	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		146	79
ľ					Sum of Perimeter and FP	146	79

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	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%20Stan							
Is this a hydronic heating system?	No						
Location of Ducts	Unducted						
Location of Air Handler	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	on <u>Affidavit, New</u>						
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	1,108 ft2
Conditioned Volume	9,418 ft3
	Heat Pump
Leastion of HVAC Distribution Suptam	laduated
Location of HVAC Distribution System	Unducted
Sum of UA, including exempt door and window	200
Envelope Heat Load Sum of UA X AT	10,208 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	5,187 Btu / Hour
Building Design Heat Load Air Leakage + Envelope Heat Loss	15,396 Btu / Hour
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	15,396 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	19,245 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	

Project Information	Messages / Results *
East Town Crossing, Unit #108	
Building B	
Pioneer & Shaw, Puyallup	UA Reduction = 2.77, 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.

 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 -- 1061 sq. ft. Baseline Description: Code Baseline - Baseline and proposed window areas are equal.

About Your Selection: Up to 15 sf exempt window and 24 sf exempt door allowable

RESULTS - Comparison of Baseline and Proposed Design								
Component Performance, R occupancies		Baseline			Pr	oposed Desig		
	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	101	30.4		0.300	101	30.4	
Flat/Vaulted Ceilings U =	0.027	0	0.0			0	0.0	
Wall (above grade) U =	0.056	1,387	77.7		0.054	1,387	74.9	
Floors over Crawlspace U =	0.029	0	0.0			0	0.0	
Slab on Grade F =	0.540	151	81.7		0.540	151	81.7	
Below Grade Wall U =	0.042	0	0.0			0	0.0	
Below Grade Slab F =	0.570	0	0.0			0	0.0	
	Basel	ine UA Total	201.7		Propo	sed UA Total	199.0	
	Required Credits			Proposed Credits			6.5	from Tables 406.2 and 406.3
		_			UA Perce	ent Reduction	1.4%	
					ι	JA Reduction	2.8	
If the Brancood U.A.C the Tayret U.A. and the Brancood Credite from Table (a required in	Section D40	6 than the home r	nanto the WEE	~		

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	5.5	6.5

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		0.0		
3	High Efficiency HVAC	Option 3.6	3.0	Ductless Split System with no electric resistance in primary living areas	
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	5.5	

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

Conditioned Floor Area, Proposed Design	n 1,061 sq. ft							
Classification Small Dwelling Unit								
Notes	25							

Exterior	Doors									
Plan	Component		Door		Wic	Width Height				
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	C	6	8	20	6.0
108B	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 Area	a and UA	40	12.0
					Exterior	Doors	Area We	iahted U		0.300

	Overhea	d Glazing										
	Plan	Component		Glazing		Width		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 Row								ws to Show	3	
Plan	Component	Glazing		Wio	lth	Height				
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt			-						-	-
1 2	U=0.30 (Code Baseline)	Table 406.2	0.30	3	4	6	3	6	47.3	14.18
2 3	U=0.30 (Code Baseline)	Table 406.2	0.30	1	5	0	6	0	30.0	9.00
3 1	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	4	0	24.0	7.20
Sum of Area and UA									101.3	30.4
Vertical Glazing Area Weighted U									0.300	
				Vertical G	lazing and	Doors A	Area We	ighted U		0.300

Vertical Glazing and Doors Area Weighted U	
--	--

	Flat/Vault	ed Ceilings						
	Plan	Component		Attic				
	ID	Description	Ref.	U		Area	UA	
		No ceiling/roof in thermal envelope	NA	-			0.0	
ſ								
ſ								
					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		1,387	75
					Sum of Area and UA	1,387	75

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		151	82	
Sum of Perimeter and FP							

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		

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	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://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	1,061 ft2	
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	9,019 ft3	
HVAC System Type	Heat Pump	
Location of HVAC Distribution System	Unducted	-
Sum of UA, including exempt door and window	199	
Envelope Heat Load Sum of UA X ∆T	10,147 Btu / Hour	
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	4,967 Btu / Hour	
Building Design Heat Load Air Leakage + Envelope Heat Loss	15,115 Btu / Hour	
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	15,115 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	18,893 Btu / Hour	
······································		

Project Information	Messages / Results *
East Town Crossing, Unit # 201	
Building B	
Pioneer & Shaw, Puyallup	UA Reduction = 2.64, 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 -- 1106 sq. ft. Baseline Description: Code Baseline - Baseline and proposed window areas are equal.

About Your Selection: Up to 15 sf exempt window and 24 sf exempt door allowable

RESULTS - Comparison of Baseline and Proposed Design								
Component Performance, R occupancies		Baseline			Pro	oposed Desig	ın	
	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	1,322	74.0		0.054	1,322	71.4	
Floors over Crawlspace U =	0.029	0	0.0			0	0.0	
Slab on Grade F =	0.540	0	0.0			0	0.0	
Below Grade Wall U =	0.042	0	0.0			0	0.0	
Below Grade Slab F =	0.570	0	0.0			0	0.0	
		_						
	Baseli	ine UA Total	124.3		Propo	sed UA Total	121.6	
	Requ	ired Credits	4.5		Propo	osed Credits	6.5	from Tables 406.2 and 406.3
		-			UA Perce	nt Reduction	2.1%	
					U	JA Reduction	2.6	
If the Proposed UA 5 the Tarrast UA and the Proposed Credits from Table 406 are 5 these required in Section D406, then the home meets the WSEC								

e required in Section R406, then

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	5.5	6.5					

Table R406.3 Energy Credits										
Option No.	Category		Select Options	Energy Credits	Brief Description of Selected Options*					
1	Efficient Building Envelope			0.0						
2	Air Leakage Control and Efficient Ventilation			0.0						
3	High Efficiency HVAC		Option 3.6	3.0	Ductless Split System with no electric resistance in primary living areas					
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	5.5						

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

Conditioned Floor Area, Proposed Design	1,106	sq. ft	
Classification	Small Dwelling	J 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
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	

	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										4
Plan	Component		Glazing		Wic	lth	He	ight		
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	4	0	72.0	21.60
4	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	6	0	36.0	10.80
5	U=0.30 (Code Baseline)	Table 406.2	0.30	1	2	6	3	0	7.5	2.25
6	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	2	0	12.0	3.60
Sum of Area and U									127.5	38.3
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	-			0.0		
ſ									
ſ									
Sum of Area and UA									

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		1,322	71			
				Sum of Area and UA	1,322	71			

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 G	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							
				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, Ler	igth 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%								
Is this a hydronic heating system?	No								
Location of Ducts	Unducted								
Location of Air Handler	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 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 (ΔT)	51 F
Conditioned Floor Area, Proposed Design	1,106 ft2
Conditioned Volume	9,401 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	122
Envelope Heat Load Sum of UA X AT	6,203 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	5,178 Btu / Hour
Building Design Heat Load Air Leakage + Envelope Heat Loss	11,381 Btu / Hour
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	11,381 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	14,226 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	

Project Information	Messages / Results *
East Town Crossing, Unit # 202	
Building B	
Pioneer & Shaw, Puyallup	UA Reduction = 2.83, 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 -- 1061 sq. ft. Baseline Description: Code Baseline - Baseline and proposed window areas are equal.

About Your Selection: Up to 15 sf exempt window and 24 sf exempt door allowable

RESULTS - Comparison of Baseline and Proposed Design								
Component Performance, R occupancies		Baseline			Pro	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	89	26.8		0.300	89	26.8	
Flat/Vaulted Ceilings U =	0.027	0	0.0			0	0.0	
Wall (above grade) U =	0.056	1,413	79.1		0.054	1,413	76.3	
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	
		_						
	Basel	ine UA Total	117.9		Propo	sed UA Total	115.1	
	Requ	ired Credits	4.5		Propo	osed Credits	6.5	from Tables 406.2 and 406.3
		-			UA Perce	nt Reduction	2.4%	
					u	A Reduction	2.8	
If the Proposed UA ≤ the Target UA, and the Proposed Credits from Table 40)6 are ≥ tho	se required in	Section R40	6, then the home	meets the WSEC) .		

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	5.5	6.5

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			0.0	
3	High Efficiency HVAC		Option 3.6	3.0	Ductless Split System with no electric resistance in primary living areas
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	5.5	

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

Conditioned Floor Area, Proposed Design	gn 1,061 sq.ft
Classification Sn	אס Small Dwelling Unit
Notes	es

Exterior	Doors									
Plan	Component		Door		Wic	dth	He	ight		
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	C	6	8	20	6.0
202B	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 Area	a and UA	40	12.0
					Exterior	Doors	Area We	iahted U		0.300

Overl	ead Glazing										
Pla	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	
				C	verhead (Glazing A	rea We	ighted U			

Vertical Glazing Schedule Rows to Sh									ws to Show	3	
	Plan	Component		Glazing		Wic	lth	He	eight		
	ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
	Exempt			-						-	-
1	2	U=0.30 (Code Baseline)	Table 406.2	0.30	3	4	6	3	6	47.3	14.18
2	3	U=0.30 (Code Baseline)	Table 406.2	0.30	1	5	0	6	0	30.0	9.00
3	6	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	2	0	12.0	3.60
							Sum	of Area	a and UA	89.3	26.8
	Vertical Glazing Area Weighted I										0.300

Vertical Glazing and Doors Area Weighted U

Flat/Va	ulted 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		1,413	76
				Sum of Area and UA	1,413	76

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

	Slab on Grade (less than 2 feet below grade)							
	Plan	Component		Slab				Γ
	ID	Description	Ref.	F		Slab Perim	FP	
		No slab on grade	NA	-			0	J
ſ								
Γ								
ſ								1
Sum of Perimeter and FF					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	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	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	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	1,061 ft2
Leave blank to use default of 8.5 ft. ceiling height	<u>9,019</u> ft3
HVAC System Type	Heat Pump
Location of HVAC Distribution System	Unducted
Sum of UA, including exempt door and window	115
Envelope Heat Load Sum of UA X ΔT	5,869 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X.018))	4,967 Btu / Hour
Building Design Heat Load Air Leakage + Envelope Heat Loss	10,836 Btu / Hour
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	10,836 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	13,545 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	

Project Information	Messages / Results *
East Town Crossing, Unit # 203	
Building B	
Pioneer & Shaw, Puyallup	UA Reduction = 2.57, 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 -- 1008 sq. ft. Baseline Description: Code Baseline - Baseline and proposed window areas are equal.

About Your Selection: Up to 15 sf exempt window and 24 sf exempt door allowable

RESULTS - Comparison of Baseline and Proposed Design								
Component Performance, R occupancies		Baseline			Pro	posed Desig	ın	
	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	78	23.4		0.300	78	23.4	
Flat/Vaulted Ceilings U =	0.027	0	0.0			0	0.0	
Wall (above grade) U =	0.056	1,285	71.9		0.054	1,285	69.4	
Floors over Crawlspace U =	0.029	0	0.0			0	0.0	
Slab on Grade F =	0.540	0	0.0			0	0.0	
Below Grade Wall U =	0.042	0	0.0			0	0.0	
Below Grade Slab F =	0.570	0	0.0			0	0.0	
		_						
	Baseli	ne UA Total	107.3		Propos	sed UA Total	104.8	
Required Credits 4.5				5 Proposed Credits 6.			6.5	from Tables 406.2 and 406.3
					UA Percei	nt Reduction	2.4%	
					U	A Reduction	2.6	
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	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	5.5	6.5			

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	2 Air Leakage Control and Efficient Ventilation			0.0				
3	3 High Efficiency HVAC			3.0	Ductless Split System with no electric resistance in primary living areas			
4	High Efficiency HVAC Distribution System		NA					
5.1	5.1 Efficient Water Heating			0.0				
5.2-5.6	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	5.5				

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

Conditioned Floor Area, Proposed Design	1,008 sq. ft		
Classification 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	0	6	8	20	6.0
203B	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	
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 Are	a and UA	0	0	
				C	verhead (Glazing A	Area We	ighted U			

Vertical Glazing Schedule Rows to Show								2			
	Plan	Component		Glazing		Wie	ith	He	eight		
	ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
	Exempt			-						-	- 1
1	1	U=0.30 (Code Baseline)	Table 406.2	0.30	2	6	0	4	0	48.0	14.40
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	78.0	23.4
						Vertical (lazina /	roa We	ighted II		0 300

Vertical Glazing and Doors Area Weighted 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			

Walis (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		1,285	69	,
				Sum of Area and UA	1,285	69	,

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	
					· · · · · ·	· · · · ·	1

	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	
ľ								
					1			
					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 I					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	n 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	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 Constructi	ion Affidavit, Existing	
New Constructi	ion <u>Affidavit, New</u>	
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	8,568 ft3
HVAC System Type	Heat Pump
Location of HVAC Distribution System	Unducted
Sum of UA, including exempt door and window	105
Envelope Heat Load Sum of UA X ΔT	5,343 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	4,719 Btu / Hour
Building Design Heat Load Air Leakage + Envelope Heat Loss	10,062 Btu / Hour
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	10,062 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	12,578 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	

Project Information	Messages / Results *
East Town Crossing, Unit # 204	
Building B	
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: 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.

 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 -- 976 sq. ft. Baseline Description: Code Baseline - Baseline and proposed window areas are equal.

About Your Selection: Up to 15 sf exempt window and 24 sf exempt door allowable

RESULTS - Comparison of Baseline and Proposed Design								
Component Performance, R occupancies		Baseline			Pro	oposed Desig	ın	
	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	70	20.9		0.300	70	20.9	
Flat/Vaulted Ceilings U =	0.027	0	0.0			0	0.0	
Wall (above grade) U =	0.056	1,366	76.5		0.054	1,366	73.8	
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	109.4		Propo	sed UA Total	106.7	
	Requ	ired Credits	4.5		Propo	osed Credits	6.5	from Tables 406.2 and 406.3
		_			UA Perce	nt Reduction	2.5%	
					U	IA Reduction	2.7	
If the Proposed UA < the Target UA, and the Proposed Credits from Table 4	6 are > tho	se required in	Section R40	6. then the home i	meets the WSEC	:		

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	5.5	6.5

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			0.0	
3	High Efficiency HVAC		Option 3.6	3.0	Ductless Split System with no electric resistance in primary living areas
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	5.5	

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

Conditioned Floor Area, Proposed Design 976 sq. ft	
Classification Small Dwelling Unit	
Notes	

Exterior	Doors									
Plan	Component		Door		Wic	dth	He	ight		
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	C	6	8	20	6.0
204B	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 Area	a and UA	40	12.0
					Exterior	r Doors /	Area We	iahted 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							Ro	ws to Show	3
	Plan	Component		Glazing		Wic	lth	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	4	0	24.0	7.20
2	2	U=0.30 (Code Baseline)	Table 406.2	0.30	1	4	6	3	6	15.8	4.73
3	3	U=0.30 (Code Baseline)	Table 406.2	0.30	1	5	0	6	0	30.0	9.00
							Sum	of Area	a and UA	69.8	20.9
						Vertical (A nuizel	rea We	II hetdai		0 300

Vertical Glazing and Doors Area Weighted U

Flat/Vau	Ited Ceilings					
Plan	Component		Attic			
ID	Description	Ref.	U	Area	UA	
	No ceiling/roof in thermal envelope	NA	-		0.0	J

Sum of Area and UA 0 0.0

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		1,366	74
	·			Sum of Area and UA	1,366	74

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 G	Grade (less than 2 feet below grade)						
	Plan	Component		Slab				Γ
	ID	Description	Ref.	F		Slab Perim	FP	
		No slab on grade	NA	-			0	J
ſ								
Γ								
ſ								1
					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	2
Run-Time Percent in Each 4-Hour Segment	100%
Is the system Balanced?	Balanced Verify system meets definition of 'Balanced Whole-House Ventilation'
Is the system Distributed?	Distributed Verify system meets definition of 'Distributed Whole-House Ventilation'
Ventilation Code Section	IMC, Section 403
Whole House Mechanical Ventilation Airflow Rate	55 CFM

HVAC Thermal Distribution System	Download RS-33 (2018) http://www.energy.wsu.edu/Documents/Duct%20Testing%20Standards%20_				
Is this a hydronic heating system?	No				
Location of Ducts	Unducted				
Location of Air Handler	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	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	976 ft2	
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	8,296 ft3	
HVAC System Type	Heat Pump	
Location of HVAC Distribution System	Unducted	-
Sum of UA, including exempt door and window	107	
Envelope Heat Load Sum of UA X ∆T	5,442 Btu / Hour	
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	4,569 Btu / Hour	
Building Design Heat Load Air Leakage + Envelope Heat Loss	10,011 Btu / Hour	
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	10,011 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 sustems	12,514 Btu / Hour	
Ballaling and Duct Heat 2033 X 1.40 for all other systems		
Project Information	Messages / Results *	
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East Town Crossing, Unit # 205		
Building B		
Pioneer & Shaw, Puyallup	UA Reduction = 2.57, 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 -- 1008 sq. ft. Baseline Description: Code Baseline - Baseline and proposed window areas are equal.

About Your Selection: Up to 15 sf exempt window and 24 sf exempt door allowable

RESULTS - Comparison of Baseline and Proposed Design								
Component Performance, R occupancies		Baseline			Pro	posed Desig	ın	
	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	78	23.4		0.300	78	23.4	
Flat/Vaulted Ceilings U =	0.027	0	0.0			0	0.0	
Wall (above grade) U =	0.056	1,285	71.9		0.054	1,285	69.4	
Floors over Crawlspace U =	0.029	0	0.0			0	0.0	
Slab on Grade F =	0.540	0	0.0			0	0.0	
Below Grade Wall U =	0.042	0	0.0			0	0.0	
Below Grade Slab F =	0.570	0	0.0			0	0.0	
		_						
	Baseli	ne UA Total	107.3		Propos	sed UA Total	104.8	
	Requ	ired Credits	4.5		Propo	sed Credits	6.5	from Tables 406.2 and 406.3
					UA Percei	nt Reduction	2.4%	
					U	A Reduction	2.6	
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 WSEC			

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	5.5	6.5

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	2 Air Leakage Control and Efficient Ventilation			0.0	
3 High Efficiency HVAC			Option 3.6	3.0	Ductless Split System with no electric resistance in primary living areas
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	5.5	

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

Conditioned Floor Area, Proposed Design	1,008 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
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 Area	a and UA	40	12.0
Exterior Doors Area Weighted U									0.300	

	Overhead	d Glazing										
	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	(
					C	verhead (Glazing A	rea We	ighted U			

Vertical Glazing Schedule Rows to Show										2	
	Plan	Component		Glazing		Wie	ith	He	eight		
	ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
	Exempt			-						-	- 1
1	1	U=0.30 (Code Baseline)	Table 406.2	0.30	2	6	0	4	0	48.0	14.40
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									78.0	23.4
						Vertical (lazina /	roa We	ighted II		0 300

Vertical Glazing and Doors Area Weighted U

0.300

L

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

Walls (A	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		1,285	69	,				
	1,285	69	,								

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	
					· · · · · ·	· · · · ·	1

	Slab on G	Grade (less than 2 feet below grade)						
	Plan	Component		Slab				
	ID	Description	Ref.	F		Slab Perim	FP	
		No slab on grade	NA	-			0	
ľ								
					1			
					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	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%2						
Is this a hydronic heating system?	No						
Location of Ducts	Unducted						
Location of Air Handler	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 Constructi	ion Affidavit, Existing	
New Constructi	ion <u>Affidavit, New</u>	
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	8,568 ft3
HVAC System Type	Heat Pump
Location of HVAC Distribution System	Unducted
Sum of UA, including exempt door and window	105
Envelope Heat Load Sum of UA X ΔT	5,343 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	4,719 Btu / Hour
Building Design Heat Load Air Leakage + Envelope Heat Loss	10,062 Btu / Hour
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	10,062 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	12,578 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	

Project Information	Messages / Results *
East Town Crossing, Unit # 206	
Building B	
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: 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.

 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 -- 976 sq. ft. Baseline Description: Code Baseline - Baseline and proposed window areas are equal.

About Your Selection: Up to 15 sf exempt window and 24 sf exempt door allowable

RESULTS - Comparison of Baseline and Proposed Design								
Component Performance, R occupancies		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	70	20.9		0.300	70	20.9	
Flat/Vaulted Ceilings U =	0.027	0	0.0			0	0.0	
Wall (above grade) U =	0.056	1,366	76.5		0.054	1,366	73.8	
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	
		_						
	Basel	ine UA Total	109.4		Propo	sed UA Total	106.7	
	Requ	ired Credits	4.5		Propo	osed Credits	6.5	from Tables 406.2 and 406.3
		_			UA Perce	nt Reduction	2.5%	
					U	A Reduction	2.7	
If the Proposed UA ≤ the Target UA, and the Proposed Credits from Table 40)6 are ≥ tho	se required in	Section R40	6. then the home r	neets the WSEC			

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	5.5	6.5

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			0.0	
3	High Efficiency HVAC		Option 3.6	3.0	Ductless Split System with no electric resistance in primary living areas
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	5.5	

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

	Conditioned Floor Area, Proposed Design 976 sq. ft				
Classification Small Dwelling Unit					
	Notes				

Exterior	Doors									
Plan	Component		Door		Wic	dth	He	ight		
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	C	6	8	20	6.0
206B	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 Area	a and UA	40	12.0
					Exterior	Doors	Area We	iahted U		0.300

	Overhea	d Glazing										
	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									ighted U			

Vertical Glazing Schedule Rows to Show a										3	
	Plan	Plan Component Glazing Width Height									
	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	4	0	24.0	7.20
2	2	U=0.30 (Code Baseline)	Table 406.2	0.30	1	4	6	3	6	15.8	4.73
3	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 69.8									20.9	
	Vertical Glazing Area Weighted II									0.300	

Vertical Glazing and Doors Area Weighted U

0.300

Flat/Vaul							
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		1,366	74		
				Sum of Area and UA	1,366	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								

	Slab on Grade (less than 2 feet below grade)								
	Plan	Component		Slab				Γ	
	ID	Description	Ref.	F		Slab Perim	FP		
		No slab on grade	NA	-			0	J	
ſ									
Γ									
ſ								1	
					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		

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					
Is this a hydronic heating system?	No					
Location of Ducts	Unducted					
Location of Air Handler	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	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	976 ft2	
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	8,296 ft3	
HVAC System Type	Heat Pump	
Location of HVAC Distribution System	Unducted	
Sum of UA, including exempt door and window	107	
Envelope Heat Load Sum of UA X ∆T	5,442 Btu / Hour	
Air Leakage Heat Load ((Volume X 0.6) X ΔT) X .018))	4,569 Btu / Hour	
Building Design Heat Load Air Leakage + Envelope Heat Loss	10,011 Btu / Hour	
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	10,011 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	12,514 Btu / Hour	
Building and Duct Heat Loss X 1.40 for all other systems		

Project Information	Messages / Results *
East Town Crossing, Unit # 207	
Building B	
Pioneer & Shaw, Puyallup	UA Reduction = 2.64, 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 -- 1105 sq. ft. Baseline Description: Code Baseline - Baseline and proposed window areas are equal.

About Your Selection: Up to 15 sf exempt window and 24 sf exempt door allowable

RESULTS - Comparison of Baseline and Proposed Design								
Component Performance, R occupancies		Baseline			Pre	oposed Desig	ın	
	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	130	38.9		0.300	130	38.9	
Flat/Vaulted Ceilings U =	0.027	0	0.0			0	0.0	
Wall (above grade) U =	0.056	1,320	73.9		0.054	1,320	71.3	
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	
		_						
	Basel	ine UA Total	124.8		Propo	sed UA Total	122.1	
	Requ	ired Credits	4.5		Prope	osed Credits	6.5	from Tables 406.2 and 406.3
					UA Perce	nt Reduction	2.1%	
					ι	A Reduction	2.6	
If the Proposed UA ≤ the Target UA, and the Proposed Credits from Table 40)6 are ≥ tho	se required in	Section R40	6. then the home r	neets the WSE	2.		

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	5.5	6.5					

Table R406.3 Energy Credits									
Option No.	Category		Select Options	Energy Credits	Brief Description of Selected Options*				
1	Efficient Building Envelope			0.0					
2	Air Leakage Control and Efficient Ventilation			0.0					
3	High Efficiency HVAC		Option 3.6	3.0	Ductless Split System with no electric resistance in primary living areas				
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	5.5					

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

Conditioned Floor Area, Proposed Design 1,105 s	q. ft
Classification Small Dwelling	Jnit
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
207A	Code Baseline, U=0.30	-	0.30	1	3	C	6	8	20	6.0
207B	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 Area and UA 40									12.0	
					Exterior	Doors	Area We	iahted 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	j i
				C	verhead (Glazing A	Area We	ighted U			

Vertical C	Glazing Schedule							Ro	ws to Show	4
Plan	Component		Glazing		Wic	lth	He	ight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt			-						-	-
1 1	U=0.30 (Code Baseline)	Table 406.2	0.30	3	6	0	4	0	72.0	21.60
2 4	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	6	0	36.0	10.80
3 5	U=0.30 (Code Baseline)	Table 406.2	0.30	1	2	6	3	0	7.5	2.25
17	U=0.30 (Code Baseline)	Table 406.2	0.30	1	7	0	2	0	14.0	4.20
						Sum	of Area	a and UA	129.5	38.9
	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			
ſ										
ſ										
					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		1,320	71
				Sum of Area and UA	1,320	71

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							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, Ler	igth 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	Conditioned Space	
Is Duct Testing Requir	ed? 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 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 (ΔT)	51 F
Conditioned Floor Area, Proposed Design	1,105 ft2
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	9,393 ft3
HVAC System Type	Heat Pump
Location of HVAC Distribution System	
Elocation of the Alban batton bystem	Undered
Sum of UA, including exempt door and window	122
Envelope Heat Load Sum of UA X ΔΤ	6,228 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X ΔT) X .018))	5,173 Btu / Hour
Building Design Heat Load Air Leakage + Envelope Heat Loss	11,401 Btu / Hour
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	11,401 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	14,251 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	

Project Information	Messages / Results *
East Town Crossing, Unit # 208	
Building B	
Pioneer & Shaw, Puyallup	UA Reduction = 2.8, 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 Baseline Description: Small Dwelling Unit -- 1061 sq. ft. 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			Pro	ın		
	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	101	30.4		0.300	101	30.4	
Flat/Vaulted Ceilings U =	0.027	0	0.0			0	0.0	
Wall (above grade) U =	0.056	1,401	78.5		0.054	1,401	75.7	
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	
		_						
	Basel	ine UA Total	120.8		Propo	sed UA Total	118.0	
	Requ	ired Credits	4.5		Propo	osed Credits	6.5	from Tables 406.2 and 406.3
					UA Perce	nt Reduction	2.3%	
					u	A Reduction	2.8	
If the Proposed UA ≤ the Target UA, and the Proposed Credits from Table 40)6 are ≥ tho	se required in	Section R40	6, then the home r	neets the WSEC) .		

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	5.5	6.5

Table R4	06.3 Energy Credits					
Option No.	Category	Category		Select Options	Energy Credits	Brief Description of Selected Options*
1	Efficient Building Envelope				0.0	
2	Air Leakage Control and Efficient Ventilation				0.0	
3	High Efficiency HVAC			Option 3.6	3.0	Ductless Split System with no electric resistance in primary living areas
4	High Efficiency HVAC Distribution System	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	5.5	

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

Conditioned Floor Area, Proposed Design	gn 1,061 sq.ft
Classification Sn	אס Small Dwelling Unit
Notes	es

Exterior Doors										
Plan	Component		Door		Wio	Width He		ight		
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	C	6	8	20	6.0
208B	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 Area and UA 40								12.0		
Exterior Doors Area Weighted U								0.300		

Overl	ead Glazing										
Pla	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 Weighted U										

Vertical Glazing Schedule Rows to Show 3									3		
	Plan	Component		Glazing		Wic	lth	He	ight		
	ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
E	cempt			-						-	-
12		U=0.30 (Code Baseline)	Table 406.2	0.30	3	4	6	3	6	47.3	14.18
23		U=0.30 (Code Baseline)	Table 406.2	0.30	1	5	0	6	0	30.0	9.00
31		U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	4	0	24.0	7.20
Sum of Area and UA									a and UA	101.3	30.4
Vertical Glazing Area Weighted U									0.300		
	Vertical Glazing and Doors Area Weighted U 0.300										

Vertical Glazing and Doors Area Weighted U
--

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		

	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		1,401	76			
Ī										
					Sum of Area and UA	1,401	76			

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]	

S	lab on G							
	Plan	Component		Slab				
	ID	Description	Ref.	F		Slab Perim	FP	
		No slab on grade	NA	-			0)
Г								
Г								
					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		

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	d Verify system meets definition of 'Distributed Whole-House Ventilation'
Ventilation Code Section	IMC, Section	on 403
Whole House Mechanical Ventilation Airflow Rate	70	0 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	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	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	1,061 ft2	
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	9,019 ft3	
HVAC System Type	Heat Pump	
Location of HVAC Distribution System	Unducted	-
Sum of UA, including exempt door and window	118	
Envelope Heat Load Sum of UA X ∆T	6,019 Btu / Hour	
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	4,967 Btu / Hour	
Building Design Heat Load Air Leakage + Envelope Heat Loss	10,987 Btu / Hour	
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	10,987 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 sustems	13,734 Btu / Hour	
Building and Buot Heat 2003 X 1.40 101 all Other Systems		

Project Information	Messages / Results *
East Town Crossing, Unit # 301	
Building B	
Pioneer & Shaw, Puyallup	UA Reduction = 2.64, 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 -- 1106 sq. ft. Baseline Description: Code Baseline - Baseline and proposed window areas are equal.

About Your Selection: Up to 15 sf exempt window and 24 sf exempt door allowable

RESULTS - Comparison of Baseline and Proposed Design								
Component Performance, R occupancies		Baseline			Pro	oposed Desig	ın	
	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	1,106	29.9		0.027	1,106	29.9	
Wall (above grade) U =	0.056	1,322	74.0		0.054	1,322	71.4	
Floors over Crawlspace U =	0.029	0	0.0			0	0.0	
Slab on Grade F =	0.540	0	0.0			0	0.0	
Below Grade Wall U =	0.042	0	0.0			0	0.0	
Below Grade Slab F =	0.570	0	0.0			0	0.0	
	Baseli	ine UA Total	154.1		Propo	sed UA Total	151.5	
	Requ	ired Credits	4.5		Propo	osed Credits	6.5	from Tables 406.2 and 406.3
		_			UA Perce	nt Reduction	1.7%	
					u	IA Reduction	2.6	
If the Proposed IIA < the Target IIA, and the Proposed Credits from Table 4	06 are > thos	se required in	Section R40	6. then the home r	neets the WSEC			

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	5.5	6.5				

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			0.0							
3	High Efficiency HVAC		Option 3.6	3.0	Ductless Split System with no electric resistance in primary living areas						
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	5.5							

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

Conditioned Floor Area, Proposed Design	1,106	sq. ft			
Classification Small Dwelling Unit					
Notes					

Exterior	Doors									
Plan	Component		Door		Wic	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 Area	a and UA	40	12.0
Exterior Doors Area Weighted U									0.300	

Overhea	d Glazing										
Plan	Component		Glazing		Wio	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 Weighted U											

Vertical Glazing Schedule Rows to Show											
Plan	Component		Glazing		Wio	ith	He	eight			
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA	
Exem	t		-						-	-	
1 1	U=0.30 (Code Baseline)	Table 406.2	0.30	3	6	0	4	0	72.0	21.60	
2 4	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	6	0	36.0	10.80	
3 5	U=0.30 (Code Baseline)	Table 406.2	0.30	1	2	6	3	0	7.5	2.25	
4 6	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	2	0	12.0	3.60	
						Sum	of Area	a and UA	127.5	38.3	
Vertical Glazing Area Weighted U										0.300	
Vertical Glazing and Doors Area Weighted U									0.300		

F	lat/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		1,106	29.9
					Sum of Area and UA	1,106	29.9

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		1,322	71	
				Sum of Area and UA	1,322	71	

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

Slab on G							
Plan	Component		Slab				
ID	Description	Ref.	F		Slab Perim	FP	
	No slab on grade	NA	-			0	
	0	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, Ler	igth 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%								
Is this a hydronic heating system?	No								
Location of Ducts	Unducted								
Location of Air Handler	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	on Affidavit, Existing	
New Construction	on <u>Affidavit, New</u>	
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	1,106 ft2
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	9,401 ft3
HVAC System Type	Heat Pump
Location of HVAC Distribution System	Unducted
Sum of UA, including exempt door and window	151
Envelope Heat Load Sum of UA X ∆T	7,726 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	5,178 Btu / Hour
Building Design Heat Load Air Leakage + Envelope Heat Loss	12,904 Btu / Hour
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	12,904 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	16,130 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	

Project Information	Messages / Results *
East Town Crossing, Unit # 302	
Building B	
Pioneer & Shaw, Puyallup	UA Reduction = 2.83, 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 -- 1061 sq. ft. Baseline Description: Code Baseline - Baseline and proposed window areas are equal.

About Your Selection: Up to 15 sf exempt window and 24 sf exempt door allowable

RESULTS - Comparison of Baseline and Proposed Design								
Component Performance, R occupancies		Baseline			Pro	oposed Desig	ın	
	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	89	26.8		0.300	89	26.8	
Flat/Vaulted Ceilings U =	0.027	1,061	28.6		0.027	1,061	28.6	
Wall (above grade) U =	0.056	1,413	79.1		0.054	1,413	76.3	
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	
	Basel	ine UA Total	146.5		Propo	sed UA Total	143.7	
	Requ	ired Credits	4.5		Propo	osed Credits	6.5	from Tables 406.2 and 406.3
		_			UA Perce	nt Reduction	1.9%	
					U	JA Reduction	2.8	
If the Proposed UA ≤ the Target UA, and the Proposed Credits from Table 40)6 are ≥ tho	se required in	Section R40	6, then the home r	neets the WSEC	.		

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	5.5	6.5

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			0.0	
3	High Efficiency HVAC		Option 3.6	3.0	Ductless Split System with no electric resistance in primary living areas
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	5.5	

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

Conditioned Floor Area, Proposed Design	gn 1,061 sq. ft
Classification	n Small Dwelling Unit
Notes	es

Exterior	Doors									
Plan	Component		Door		Wic	dth	He	ight		
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	C	6	8	20	6.0
302B	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 Area	a and UA	40	12.0
					Exterior	Doors	Area We	iahted U		0.300

Overhea	d Glazing										
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	
				C	verhead (Glazing A	rea We	ighted U			

Vertical	Glazing Schedule							Ro	ws to Show	3
Plan	Component		Glazing		Wio	lth	He	eight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt			-						-	-
12	U=0.30 (Code Baseline)	Table 406.2	0.30	3	4	6	3	6	47.3	14.18
2 3	U=0.30 (Code Baseline)	Table 406.2	0.30	1	5	0	6	0	30.0	9.00
3 6	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	2	0	12.0	3.60
						Sum	of Area	a and UA	89.3	26.8
Vertical Glazing Area Weighted U								0.300		
				Vertical G	lazing and	Doors A	Area We	ighted U		0.300

Flat/Vau	Ited 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		1,061	28.6
				Sum of Area and UA	1,061	28.6

Plan	Component		Wall			
ID	Description	Ref.	U		Net Area	UA
	R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,413	76
				Sum of Area and UA	1.413	76

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				Γ
	ID	Description	Ref.	F		Slab Perim	FP	
		No slab on grade	NA	-			0	J
ſ								
Γ								
ſ								1
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	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	n 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	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	1,061 ft2
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	9,019 ft3
HVAC System Type	Heat Pump
Location of HVAC Distribution System	Unducted
Sum of UA, including exempt door and window	144
Envelope Heat Load Sum of UA X ∆T	7,330 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	4,967 Btu / Hour
Building Design Heat Load Air Leakage + Envelope Heat Loss	12,297 Btu / Hour
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	12,297 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	15,372 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	

Project Information	Messages / Results *
East Town Crossing, Unit # 303	
Building B	
Pioneer & Shaw, Puyallup	UA Reduction = 2.57, 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 -- 1007 sq. ft. Baseline Description: Code Baseline - Baseline and proposed window areas are equal.

About Your Selection: Up to 15 sf exempt window and 24 sf exempt door allowable

RESULTS - Comparison of Baseline and Proposed Design								
Component Performance, R occupancies		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	78	23.4		0.300	78	23.4	
Flat/Vaulted Ceilings U =	0.027	1,007	27.2		0.027	1,007	27.2	
Wall (above grade) U =	0.056	1,285	71.9		0.054	1,285	69.4	
Floors over Crawlspace U =	0.029	0	0.0			0	0.0	
Slab on Grade F =	0.540	0	0.0			0	0.0	
Below Grade Wall U =	0.042	0	0.0			0	0.0	
Below Grade Slab F =	0.570	0	0.0			0	0.0	
	Baseli	ine UA Total	134.5		Propo	sed UA Total	132.0	
	Requ	ired Credits	4.5		Propo	osed Credits	6.5	from Tables 406.2 and 406.3
					UA Perce	nt Reduction	1.9%	
					U	A Reduction	2.6	
If the Proposed UA < the Target UA, and the Proposed Credits from Table 4)6 are > thos	se required in	Section R40	6 then the home r	neets the WSEC	:		

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	5.5	6.5			

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			0.0				
3	High Efficiency HVAC		Option 3.6	3.0	Ductless Split System with no electric resistance in primary living areas			
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	5.5				

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

Conditioned Floor Area, Proposed Design	1,007	sq. ft			
Classification Small Dwelling Unit					
Notes					

Exterior	Doors									
Plan	Component		Door		Wic	dth	He	ight		
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	C	6	8	20	6.0
303B	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 Area	a and UA	40	12.0
					Exterior	Doors	Area We	iahted U		0.300

Overhea	d Glazing										
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	5			
				0	verhead (Glazing A	Area We	ighted U			

	Vertical Glazing Schedule Rows to Show 2							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	2	6	0	4	0	48.0	14.40
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 78.0							23.4				
						Vortical (lazina /	roa We	ighted II		0 300

Vertical Glazing and Doors Area Weighted U

0.300

Elet/Veult	at/Vaulted Ceilings								
Plan	Component	T	Attic				_		
ID	Description	Ref.	U		Area	UA			
	R49 blown Attic STD baffled (Code Baseline, Option 1.1-1.4)	10-7	0.027		1,007	27.2			
	Sum of Area and UA 1,007 27.2								

Walls (Above Grade) Plan ID Component Wall Description Ref. U Net Area UA 10-5 0.054 1,285 R21 cavity+R0 foam INT 2X6W Lap (Code Baseline) 69 Sum of Area and UA 1,285 69

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	
				Sum of Area and UA	0	0	4

	Slab on G	Grade (less than 2 feet below grade)						
	Plan	Component		Slab				
	ID	Description	Ref.	F		Slab Perim	FP	
		No slab on grade	NA	-			0	
Ī								
ľ								
					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	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 4	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%2					
Is this a hydronic heating system?	No					
Location of Ducts	Unducted					
Location of Air Handler	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	1,007 ft2
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	8,560 ft3
HVAC System Type	Heat Pump
Location of HVAC Distribution System	Unducted
Sum of UA, including exempt door and window	132
Envelope Heat Load Sum of UA X ∆T	6,730 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	4,715 Btu / Hour
Building Design Heat Load Air Leakage + Envelope Heat Loss	11,444 Btu / Hour
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	11,444 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	14,305 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	

Project Information	Messages / Results *
East Town Crossing, Unit # 304	
Building B	
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: 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.

 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 -- 976 sq. ft. Baseline Description: Code Baseline - Baseline and proposed window areas are equal.

About Your Selection: Up to 15 sf exempt window and 24 sf exempt door allowable

RESULTS - Comparison of Baseline and Proposed Design								
Component Performance, R occupancies		Baseline			Pro	oposed Desig	ın	
	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	70	20.9		0.300	70	20.9	
Flat/Vaulted Ceilings U =	0.027	976	26.4		0.027	976	26.4	
Wall (above grade) U =	0.056	1,366	76.5		0.054	1,366	73.8	
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	
		_						
	Basel	ine UA Total	135.8		Propo	sed UA Total	133.1	
	Requ	ired Credits	4.5		Propo	osed Credits	6.5	from Tables 406.2 and 406.3
					UA Perce	nt Reduction	2.0%	
					U	JA Reduction	2.7	
If the Proposed UA ≤ the Target UA, and the Proposed Credits from Table 40)6 are ≥ tho	se required in	Section R40	6. then the home r	neets the WSEC	3.		

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	5.5	6.5

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			0.0	
3	High Efficiency HVAC		Option 3.6	3.0	Ductless Split System with no electric resistance in primary living areas
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	5.5	

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

Conditioned Floor Area, Proposed Design 976 so	ft
Classification Small Dwelling L	nit
Notes	

Exterior	Doors									
Plan	Component		Door		Wic	dth	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	C	6	8	20	6.0
304B	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 Area	a and UA	40	12.0
- Exterior Doors Area Weighted IU										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	Vertical Glazing Schedule Ro								ws to Show	3
Plan	Plan Component Glazing Width Height									
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	4	0	24.0	7.20
2 2	U=0.30 (Code Baseline)	Table 406.2	0.30	1	4	6	3	6	15.8	4.73
3 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							69.8	20.9		
Vertical Glazing Area Weighted							ighted U		0.300	
				Vertical G	lazing and	Doors A	rea We	ighted U		0.300

/Vault	ed Ceilings					
lan	Component		Attic			
ID	Description	Ref.	U		Area	UA
	R49 blown Attic STD baffled (Code Baseline, Option 1.1-1.4)	10-7	0.027		976	26.4
				Sum of Area and UA	976	26.4
/	Vault an D	Vaulted Ceilings an Component D Description R49 blown Attic STD baffled (Code Baseline, Option 1.1-1.4)	Vaulted Ceilings an Component Ref. D Description Ref. R49 blown Attic STD baffled (Code Baseline, Option 1.1-1.4) 10-7 Image: Component of the second seco	Vaulted Ceilings an Component Attic D Description Ref. U R49 blown Attic STD baffled (Code Baseline, Option 1.1-1.4) 10-7 0.027 Image: Component in the state of th	Vaulted Ceilings an Component Description Ref. U R49 blown Attic STD baffled (Code Baseline, Option 1.1-1.4) 10-7 0.027 0 Sum of Area and UA	Vaulted Ceilings an Component Description Ref. U Area Area Physical Code Baseline, Option 1.1-1.4) 10-7 0.027 976 976 976 976 10-7 0.027 976 10-7 0.027 976 10-7 0.027 976 10-7 0.027 976 10-7 976 10-7 976 976 976 976 976 976 976 976 976 97

N	Valls (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		1,366	74
					Sum of Area and UA	1,366	74

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

	Slab on G	Grade (less than 2 feet below grade)						
	Plan	Component		Slab				Γ
	ID	Description	Ref.	F		Slab Perim	FP	
		No slab on grade	NA	-			0	J
ſ								
Γ								
ſ								1
					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	2
Run-Time Percent in Each 4-Hour Segment	100%
Is the system Balanced?	Balanced Verify system meets definition of 'Balanced Whole-House Ventilation'
Is the system Distributed?	Distributed Verify system meets definition of 'Distributed Whole-House Ventilation'
Ventilation Code Section	IMC, Section 403
Whole House Mechanical Ventilation Airflow Rate	55 CFM

HVAC Thermal Distribution System	Download RS-33 (2018) http://www.energy.	wsu.edu/Documents/Duct%20Testing%20Standards%20_
Is this a hydronic heating system?	No	
Location of Ducts	Unducted	
Location of Air Handler	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	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	9/6 112
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	8,296]#3
HVAC System Type	Heat Pump
Location of HVAC Distribution System	Unducted
Sum of UA, including exempt door and window	133
Envelope Heat Load Sum of UA X ΔT	6,786 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	4,569 Btu / Hour
Building Design Heat Load Air Leakage + Envelope Heat Loss	11,355 Btu / Hour
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	11,355 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	14,194 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	

Project Information	Messages / Results *
East Town Crossing, Unit # 305	
Building B	
Pioneer & Shaw, Puyallup	UA Reduction = 2.57, 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 -- 1007 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

1	RESULTS - Comparison of Baseline and Proposed Design								
ſ	Component Performance P occupancies		Baseline			Pro	posed Desig	n	
	<u>component renormance, recoupancies</u>	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	78	23.4	Ī	0.300	78	23.4	
	Flat/Vaulted Ceilings U =	0.027	1,007	27.2		0.027	1,007	27.2	
	Wall (above grade) U =	0.056	1,285	71.9		0.054	1,285	69.4	
	Floors over Crawlspace U =	0.029	0	0.0			0	0.0	
	Slab on Grade F =	0.540	0	0.0			0	0.0	
	Below Grade Wall U =	0.042	0	0.0			0	0.0	
	Below Grade Slab F =	0.570	0	0.0			0	0.0	
			_						
		Baseli	ine UA Total	134.5		Propo	sed UA Total	132.0	
		Requ	ired Credits	4.5		Propo	osed Credits	6.5	from Tables 406.2 and 406.3
						UA Perce	nt Reduction	1.9%	
						U	A Reduction	2.6	
	If the Proposed IIA < the Target IIA, and the Proposed Credits from Table 4()6 are > tho	se required in	Section R40	6 then the home n	neets the WSEC			

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	5.5	6.5

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			0.0	
3	High Efficiency HVAC		Option 3.6	3.0	Ductless Split System with no electric resistance in primary living areas
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	5.5	

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

Conditioned Floor Area, Proposed Design	1,007	sq. ft	
Classification	Small Dwelling	g Unit	
Notes			

Exterior	Doors									
Plan	Component		Door		Wio	dth	He	ight		
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	C	6	8	20	6.0
305B	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 Area	a and UA	40	12.0
					Exterio	Doors	Area We	iahted U		0.300

0	verhead	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							Ro	ws to Show	2
	Plan	Component		Glazing		Wio	lth	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	4	0	48.0	14.40
2	3	U=0.30 (Code Baseline)	Table 406.2	0.30	1	5	0	6	0	30.0	9.00
							Sum	of Area	a and UA	78.0	23.4
						Vertical (Glazing A	Area We	ighted U		0.300
					Vertical G	lazing and	Doors A	rea We	ighted U		0.300

_								
	F	lat/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	1,007	27.2	

27.2 Sum of Area and UA 1,007

Walls (Above Grade)									
Plar	Component		Wall						
ID	Description	Ref.	U		Net Area	UA			
	R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,285	69			
	·			Sum of Area and UA	1,285	69			

Floor (ove	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		
ľ									
					1				
	Sum of Perimeter and FP								

Below Grade Walls and Slabs									
Plan	Component		Wall	Wall	Wall	Slab		Slab	
ID	Description	Ref.	U	Area	UA	F	Slab Perim	UA	
	Sum	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%						
Is this a hydronic heating system?	No						
Location of Ducts	Unducted						
Location of Air Handler	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 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	fi2
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	8,560 ft3
HVAC System Type	Heat Pump
Location of HVAC Distribution System	Unducted
Sum of UA, including exempt door and window	132
Envelope Heat Load Sum of UA X ΔT	6,730 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X .018))	4,715 Btu / Hour
Building Design Heat Load Air Leakage + Envelope Heat Loss	11,444 Btu / Hour
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	11,444 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	14,305 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	

Project Information	Messages / Results *
East Town Crossing, Unit # 306	
Building B	
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: 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.

 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 -- 976 sq. ft. Baseline Description: Code Baseline - Baseline and proposed window areas are equal.

About Your Selection: Up to 15 sf exempt window and 24 sf exempt door allowable

RESULTS - Comparison of Baseline and Proposed Design								
Component Performance, R occupancies		Baseline			Pro	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	70	20.9		0.300	70	20.9	
Flat/Vaulted Ceilings U =	0.027	976	26.4		0.027	976	26.4	
Wall (above grade) U =	0.056	1,366	76.5		0.054	1,366	73.8	
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	
		_						
	Basel	ine UA Total	135.8		Propo	sed UA Total	133.1	
	Requ	ired Credits	4.5		Propo	osed Credits	6.5	from Tables 406.2 and 406.3
		_			UA Perce	nt Reduction	2.0%	
					U	A 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	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	5.5	6.5			

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			0.0							
3	High Efficiency HVAC		Option 3.6	3.0	Ductless Split System with no electric resistance in primary living areas						
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	5.5							

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

Conditioned Floor Area, Proposed Design 976 so	ft
Classification Small Dwelling L	nit
Notes	

Exterior	Doors									
Plan	Component		Door		Wic	dth	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	C	6	8	20	6.0
306B	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 Area	a and UA	40	12.0
Exterior Doors Area Weighted U										0.300

	Overhea	d Glazing										
	Plan	Component		Glazing		Wio	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 Weighted U												

Vertical Glazing Schedule Rows to Show											3
	Plan	Component		Glazing		Wio	lth	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	4	0	24.0	7.20
2	2	U=0.30 (Code Baseline)	Table 406.2	0.30	1	4	6	3	6	15.8	4.73
3	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										69.8	20.9
Vertical Glazing Area Weighted I									0.300		

Vertical Glazing and Doors Area Weighted U

0.300

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		976	26.4				
		•		Sum of Area and UA	976	26.4				

Walls (At	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		1,366	74
				Sum of Area and UA	1,366	74

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

s	Slab on Grade (less than 2 feet below grade)										
	Plan	Component		Slab				Г			
	ID	Description	Ref.	F		Slab Perim	FP				
Г		No slab on grade	NA	-			0	0			
Г											
								1			
		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	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							
Is this a hydronic heating system?	No							
Location of Ducts	Unducted							
Location of Air Handler	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: <u>https://betterbuiltnw.com/resources/hvac-sizing-tool</u>	
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	976 ft2	
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	8,296 ft3	
HVAC System Type	Heat Pump	
Location of HVAC Distribution System	Unducted	
Sum of UA, including exempt door and window	133	
Envelope Heat Load Sum of UA X ∆T	6,786 Btu / Hour	
Air Leakage Heat Load ((Volume X 0.6) X ΔT) X .018))	4,569 Btu / Hour	
Building Design Heat Load Air Leakage + Envelope Heat Loss	11,355 Btu / Hour	
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	11,355 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	14,194 Btu / Hour	
Building and Duct Heat Loss x 1.40 for all other systems		

Project Information	Messages / Results *
East Town Crossing, Unit #307	
Building B	
Pioneer & Shaw, Puyallup	UA Reduction = 2.64, 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 -- 1105 sq. ft. Baseline Description: Code Baseline - Baseline and proposed window areas are equal.

About Your Selection: Up to 15 sf exempt window and 24 sf exempt door allowable

RESULTS - Comparison of Baseline and Proposed Design								
Component Performance, R occupancies		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	130	38.9		0.300	130	38.9	
Flat/Vaulted Ceilings U =	0.027	1,105	29.8		0.027	1,105	29.8	
Wall (above grade) U =	0.056	1,320	73.9		0.054	1,320	71.3	
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	
		_						
	Basel	ine UA Total	154.6		Propo	sed UA Total	151.9	
	Requ	ired Credits	4.5		Propo	osed Credits	6.5	from Tables 406.2 and 406.3
		_			UA Perce	nt Reduction	1.7%	
					U	A Reduction	2.6	
If the Proposed UA < the Target UA, and the Proposed Credits from Table 4	06 are > tho	se required in	Section R40	6 then the home i	meets the WSEC	:		

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	5.5	6.5

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	and Efficient Ventilation		0.0								
3	High Efficiency HVAC			3.0	Ductless Split System with no electric resistance in primary living areas							
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	5.5								

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

Conditioned Floor Area, Proposed Design	1,105	sq. ft	
Classification	Small Dwelling	g Unit	
Notes			

Exterior	Doors									
Plan	Component		Door		Wic	dth	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	C	6	8	20	6.0
307B	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 Area	a and UA	40	12.0
					Exterior	r Doors /	Area We	iahted U		0.300

Overhea	d Glazing										
Plan	Component		Glazing		Wio	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 Weighted U											

١	Vertical Glazing Schedule Rows to Show 4									4	
	Plan	Component		Glazing		Wic	lth	He	ight		
	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	4	0	72.0	21.60
2	-	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	6	0	36.0	10.80
3 5	5	U=0.30 (Code Baseline)	Table 406.2	0.30	1	2	6	3	0	7.5	2.25
4		U=0.30 (Code Baseline)	Table 406.2	0.30	1	7	0	2	0	14.0	4.20
Sum of Area and UA 12								129.5	38.9		
Vertical Glazing Area Weighted U								0.300			
					Vertical G	lazing and	Doors A	rea We	ighted U		0.300

F	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		1,105	29.8				
Γ											
Γ											
					Sum of Area and UA	1,105	29.8				

Walls (A	Walls (Above Grade)										
Plan	Component		Wall								
ID	Description	Ref.	U		Net Area	UA					
Ì	R21 cavity+R0 foam INT 2X6W Lap (Code Baseline)	10-5	0.054		1,320	71					
				Sum of Area and UA	1,320	71					

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	

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	
				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, Ler	igth 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%						
Is this a hydronic heating system?	No					
Location of Ducts	Unducted					
Location of Air Handler	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	on Affidavit, Existing	
New Construction	on <u>Affidavit, New</u>	
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	1.105 ft2
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	9,393 ft3
HVAC System Type	Heat Pump
Location of HVAC Distribution System	Unducted
Sum of UA, including exempt door and window	152
Envelope Heat Load Sum of UA X AT	7,749 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X ΔT) X.018))	5,173 Btu / Hour
Building Design Heat Load Air Leakage + Envelope Heat Loss	12,923 Btu / Hour
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	12,923 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	16,153 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	

Project Information	Messages / Results *
East Town Crossing, Unit # 308	
Building B	
Pioneer & Shaw, Puyallup	UA Reduction = 2.8, 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 -- 1061 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

RESULTS - Comparison of Baseline and Proposed Design								
Component Performance, R occupancies		Baseline			Pro	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	101	30.4		0.300	101	30.4	
Flat/Vaulted Ceilings U =	0.027	1,061	28.6		0.027	1,061	28.6	
Wall (above grade) U =	0.056	1,401	78.5		0.054	1,401	75.7	
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	
		-						
	Basel	ine UA Total	149.5		Propo	sed UA Total	146.7	
	Requ	ired Credits	4.5		Propo	osed Credits	6.5	from Tables 406.2 and 406.3
					UA Perce	nt Reduction	1.9%	
					U	A Reduction	2.8	
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	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	5.5	6.5			

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				0.0		
3	3 High Efficiency HVAC			Option 3.6	3.0	Ductless Split System with no electric resistance in primary living areas	
4	High Efficiency HVAC Distribution System				NA		
5.1	5.1 Efficient Water Heating				0.0		
5.2-5.6	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	5.5		

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

Conditioned Floor Area, Proposed Design	gn 1,061 sq.ft			
Classification Small Dwelling Unit				
Notes				

Exterior	Doors									
Plan	Component		Door		Wio	ith	He	ight		
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	C	6	8	20	6.0
308B	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 Area and UA 40								12.0		
Exterior Doors Area Weighted U								0.300		

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

Vertical Glazing Schedule Rows to Show									3	
Plan	Component		Glazing		Wic	ith	He	ight		
ID	Description	Ref.	U	Qt.	Feet	Inch	Feet	Inch	Area	UA
Exempt			-						-	-
1 2	U=0.30 (Code Baseline)	Table 406.2	0.30	3	4	6	3	6	47.3	14.18
2 3	U=0.30 (Code Baseline)	Table 406.2	0.30	1	5	0	6	0	30.0	9.00
3 1	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	0	4	0	24.0	7.20
						Sum	of Area	a and UA	101.3	30.4
					Vertical C	Glazing A	rea We	ighted U		0.300
				Vertical G	lazing and	Doors A	rea We	ighted U		0.300

oors Area Weighted	nd	Glazing	Vertical	V
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	Flat/Vault	ted Ceilings					
	Plan	Component		Attic			
	ID	Description	Ref.	U		Area	UA
I		R49 blown Attic STD baffled (Code Baseline, Option 1.1-1.4)	10-7	0.027		1,061	28.6
I							
ľ							
					Sum of Area and UA	1,061	28.6

١	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		1,401	76		
Γ									
Γ									
					Sum of Area and UA	1,401	76		

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

	Slab on Grade (less than 2 feet below grade)							
	Plan	Component		Slab				Γ
	ID	Description	Ref.	F		Slab Perim	FP	
		No slab on grade	NA	-			0	J
ſ								
Γ								
ſ								1
Sum of Perimeter and F						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	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	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	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	1.061 ft2	
Conditioned Volume Leave blank to use default of 8.5 ft. ceiling height	9,019 ft3	
HVAC System Type	Heat Pump	
Location of HVAC Distribution System	Unducted	-
Sum of UA, including exempt door and window	147	
Envelope Heat Load Sum of UA X ΔT	7,480 Btu / Hour	
Air Leakage Heat Load ((Volume X 0.6) X ∆T) X.018))	4,967 Btu / Hour	
Building Design Heat Load Air Leakage + Envelope Heat Loss	12,448 Btu / Hour	
Building and Duct Heat Load For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	12,448 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	15,560 Btu / Hour	
Duilding and Duct near Loss A 1.40 for all other systems		