

ERI Target Procedure for use with ANSI/RESNET/ICC 301-20194

This document provides detailed instructions for determining the ENERGY STAR ERI Target, the highest ERI value that each rated multifamily unit, excluding townhouses, may achieve to earn the ENERGY STAR. Note that, in addition to meeting the ENERGY STAR ERI Target for each unit, units shall also meet all Mandatory Requirements for All Multifamily New Construction Projects in Exhibit 2 of the National Program Requirements for ENERGY STAR Multifamily New Construction, Version 1 / 1.1 / OR-WA 1.2. While Townhouses are eligible to earn ENERGY STAR Multifamily New Construction certification by meeting their ENERGY STAR ERI Target and also meeting all Mandatory Requirements for All Multifamily New Constructions for determining their ENERGY STAR ERI Target is in the National ERI Target Procedure for ENERGY STAR Certified Homes.

An EPA-recognized Verification Oversight Organization's Approved Software Rating Tool shall automatically determine (i.e., without relying on a user-configured ENERGY STAR Multifamily Reference Design) this target for each rated unit. This shall be done by configuring the ENERGY STAR Multifamily Reference Design in accordance with Exhibit 1, the Expanded ENERGY STAR Multifamily Reference Design Definition, and calculating its associated ERI value. The ERI value shall be calculated using ANSI / RESNET / ICC Standard 301-20194 including all Addenda and Normative Appendices, with new versions and Addenda implemented according to the Effective Date and Transition Period End Date defined by RESNET. RESNET interpretations of Standard 301-20194 shall also be followed. Any exceptions shall be approved by EPA and reported at www.energystar.gov/ERIExceptions. This value, rounded to the nearest whole number, shall equal the ENERGY STAR ERI Target.

The Oregon and Washington ERI Target Procedure (ANSI 301-20149) must instead be used to determine the ENERGY STAR ERI Target when using ANSI / RESNET / ICC Standard 301-20149.



Oregon and Washington ERI Target Procedure (ANSI 301-20194) ENERGY STAR Multifamily New Construction, Version 1.2 (Rev. 01)

Exhibit 1: Expanded ENERGY STAR Multifamily Reference Design Definition

Building Component	F	Expanded ENERGY STAR M	ultifamily Reference De	sign Definition ¹			
Foundations:	Expanded ENERGY STAR Multifamily Reference Design Definition ¹ Construction Type & Structural Mass: Same as Rated Unit ² , except:						
i oundations.	 For masonry floor slabs, modeled with 80% of floor area covered by carpet and 20% of floor directly exposed to room air 						
	Conditioning Type: Same as Rated Unit ² , except:						
	Crawlspaces shall be modeled as vented with net free vent aperture = 1sq. ft. per 150 sq. ft. of crawlspace floor area						
	Gross Area: Same as Rated Unit ²						
	Insulation: ^{3, 4} Choose appropriate insu	ulation level below;					
	Basement Wall Continuous Insu	lation R-Value only applies to	conditioned basements;	if applicable, insulati	on shall be located on interior		
	 side of walls Floor assemblies above crawlspace foundations shall be configured to meet the applicable floor assembly U-factor listed in the building 						
	component section for Floors Ov						
	 On-grade and below-grade slab floors shall be insulated to the Slab Insulation R-value at both the perimeter for the entire depth of the slab, 						
	or 2 ft. if slab depth is not specifi						
	Climate Zone:			CZ 4 C & 5	CZ 6		
	Slab Insulation R-Value:			10	10		
	Basement Wall Continuous Insulation R-Value:			15	15		
Floors Over	Construction Type: Wood frame						
Unconditioned	Gross Area: Same as Rated Unit ²						
Spaces:	Insulation: ^{3, 4}						
	Climate Zone:			CZ 4 C & 5	CZ 6		
	Floor Assembly U-Factor:			0.028	0.028		
Above-Grade	Interior and Exterior Construction Typ	e: Wood frame		0.020	0.020		
Walls:	Gross Area: Same as Rated Unit ²						
	Solar Absorptance = 0.75						
	Emittance = 0.90						
	Insulation: ³						
	Climate Zone:			CZ 4 C & 5	CZ 6		
	Wall Assembly U-Factor:			0.056	0.056		
Thermally	Ē						
Isolated	None						
Sunrooms:							
Doors:	Area: Same as Rated Unit ² , with door		imize air leakage betwee	en the door and door	frame, to avoid the 140 CFM		
	addition to measured airflow per ANS Orientation: Same as Rated Unit ²	1 / RESINET / ICC Std. 380					
	U-Factors and SHGCs:						
	Door Type:	Opaque	≤ 1/2-Lite	> 1/2-Lite			
	U-Factor:	0.17	0.25	0.30			
	SHGC:	n/a	0.25	0.30			
Glazing:	Total Area: AG = 0.15 x CFA x FA x F	, without exceeding available	wall area ⁵				
-	Orientation: Same as Rated Unit ² , by percentage of area						
	Interior Shade Coefficient: Same as E	nergy Rating Reference Hom	e, as defined by ANSI / F	RESNET / ICC Std. 3	01		
	External Shading: None						
	Assembly U-Factors and SHGCs:						
	Climate Zone:			CZ 4 C & 5	CZ 6		
	U-Factor:			0.27	0.27		
	SHGC:			0.30	0.30		
	Class AW Assembly U-Factors (i.e., S	Structural) Windows based on	2015 IgCC				
	Climate Zone:			CZ 4 C & 5	CZ 6		
	Fixed Window U-Factor:			0.36	0.34		
	Operable Window U-Factor:			0.43	0.41		
	SHGC:			0.30	0.30		
Skylights:	None						
Ceilings:	Construction Type: Wood frame						
	Gross Area: Same as Rated Unit ²						
	Insulation: ³						
	Climate Zone:			CZ 4 C & 5	CZ 6		
	Ceiling Assembly U-Factor:			0.026	0.026		
Top Floor Unit	Construction Type: Vented with apertu	ure = 1sq. π. per 300 sq. ft. ce	lling area				
Attics: Roofs:	Radiant Barrier: None	ale on wood choothing					
	Construction Type: Composition shing Gross Area: Same as Rated Unit ²	gie on wood sneathing					
	Solar Absorptance = 0.92						
	Emittance = 0.90						
	\Box millance = 0.90						



Oregon and Washington ERI Target Procedure (ANSI 301-20194)

ENERGY STAR Multifamily New Construction, Version 1.2 (Rev. 01)

Exhibit 1: Expanded ENERGY STAR Multifamily Reference Design Definition (Continued)

determined in accordance with the methodology for the Energy Rating Reference Home in ANSI / RESNET / ICC Std. 301, suing motor efficiency of 0.85 Cooling Cooling cooling in this Section / Exponent cooling in an other units, and the remine in ANSI / RESNET / ICC Std. 301, using motor efficiency of 0.85 Cooling Cooling cooling cooling cooling in the methodology for the Rated Home in ANSI / RESNET / ICC Std. 301, using motor efficiency of 0.85 Cooling Cooling cooling cooling cooling in the Rated Unit ² , except Reference Design shall be configured with air-source heat pump where Rated Unit ² , ascore theat pump, electric trip heat, or electric baseboard heat; applicable efficiency selected from below Cilimate Zone: Climate Zone: 13 13 Air-Source Heat Pump SEER: 15 15 More system Type is a chiller or cooling tower with water-loop heat pumps. Reference Design SEER_shall be determined in a the methodology for the Rated Unit in ANSI / RESNET / ICC Std. 301, using motor efficiency of 0.85. For chillers. Reference Design SEER_shall be determined using 0.78 kW/ton. For water-loop heat pumps, Reference Design SEER_shall be determined using 0.78 kW/ton. For water-loop heat pumps, Reference Design SEER_shall be determined using 0.78 kW/ton. For water-loop heat pumps, Reference Design SEER_shall be determined using 0.18 except 1 rack Tamperature: Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301, except 1 restrip and the sequence of the set of the RESNET / ICC Std. 301, except 1 restrip and the sequence of the set of the RESNET / ICC Std. 301, except 1 restrip and the set of the RESNET / ICC Std. 301, except 1 restrip and the sequence of th			Y STAR Multifamily Reference Design I					
baler is distributed by water-loop heat pumps within the Rated Unit in accordance with the methodology for the Rated Home is RESNET. I/CS 103.01. the Reference Design shall be configured with air exource heat pump where Rated Unit accord of 11.14.21 or 76.179. Feel Type: Same as Rated Unit * Feel Type: Same as Rated Unit * Same Area C2 40 & 5 Gas Fun: AFUE: 95 OI Bound Source heat pump, electric strip heat, or electric baseboard heat, applicable efficiency selected from below OI Bound Area OI Bound Area 95 Gas Fun: AFUE: 96 OI Bound Area 86 Carring Boling: AFUE: 86 OI Bound Area 80 OI Bound Area 80 Carring Boling: AFUE: 86 OI Bound Area 80 Carring Boling: AFUE: 86 OI Bound Area 83 Area 83 Area 83 Area 83 Carring Boling: AFUE: 86 Carring Boling: AFUE: 86 Carring Boling: AFUE: 86 Carring Boling: AFUE: 80 Carring Boling: AFUE: 80 <td< th=""><th>Heating</th><th></th><th></th><th></th></td<>	Heating							
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Instatump with a capacity that is equal to the Reference Design heating load divided by 4.2 COP and 2 a boler with the balar apacity of (11.42) or 75.01% Fuel Type: Same as Rated Unit ² , except Reference Design shall be configured with air-source heat pump, where Rated Unit air-source or ground-source heat pump, electric strip heat, or electric baseboard heat, applicable efficiency selected from below Climate Zone: Car 24 C & 5 CZ 46 C & 5 Oir Furn, AFUE: 85 Oir Furn, AFUE: 86 Car 26 C & 5 CZ 6 Oir Furn, AFUE: 85 Car 26 C & 5 CZ 6 Oir Furn, AFUE: 85 Car 26 C & 5 CZ 6 Oir Furn, AFUE: 85 Car 26 C & 5 S5 Oir Furn, AFUE: 83 Car 26 C & 5 9.5 Air-Source Heat Pump BBackup: Elstric function Coround-Source Heat Pump BDBC Na Cooling Cooling Coround-Source Heat Pump COP: Na Cooling Cooling Cooling capacity shall be selected in accordance with ACCA Manual S based on loads: calculated for the Reference Design for ACCA Manual J. Egith Edition, ASRAE Handbook of Fundamentalis, or a equiratic Auriliary Energy shall be configured with air-source heat pump Stere from Nebior Car 40 (S S C C Z C C C C C C C C C C C C C C C								
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determined in this Section. For non-electric bailers, serving the Rated Unit and other units, the Electric Auxiliary Energy shall be accordance with the methodology for the Rated Home in ANSI / RESNET / ICC Std. 301, using motor efficiency of 0.85 Cooling Cooling capacity shall be selected in accordance with ACCA Manual S based on loads calculated for the Reference Design in ACCA Manual J, Eighth Edition, ASHRAE Handbook of Fundamentals, or an equivalent computation procedure Fuel Type: Same as Rated Unit ^{2,6} System Type: Same as Rated Unit ^{2,6} System Type: Same as Rated Unit ^{2,6} CZ 4 C & S CZ 6 AC SEER: 13 13 Air-Source Heat Pump SEER: 15 15 Ground-Source Heat Pump EER: n/a n/a Where system type is a chiller or cooling tower with water-loop heat pumps, Reference Design SEER., shall be determined using 14 El Service Use (Gallons per Day): Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301, scoept for resulting from R-3 pipe insultation and the equipment specified in the Unity. IRSINET / ICC Std. 301. Systems: Tank Temperature: Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301. Recirculation Pump Energy (for pumps serving the Rated Unit and other units): 0 KWh per year Recirculation Pump Energy (for pumps serving the Rated Unit and other units): 0 KWh per year Recirculation Pump Energy (for pumps servin			For non-electric warm furnaces and non-electric boilers, serving the Rated Unit and no other units, the Electric Auxiliary Energy shall be					
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Systems: ACCA Manual J, Eighth Edition, ASHRAE Handbook of Fundamentals, or an equivalent computation procedure Fuel Type: Same as Rated Unit ^{2,6} System Type: Same as Rated Unit ^{2,6} System Type: Same as Rated Unit ^{2,6} Citize Zone: CZ 6 AC SEER: 13 Air-Source Heat Pump SEER: 15 Ground-Source Heat Pump SEER: 15 Ground-Source Heat Pump SEER: 17 Where system type is a chiller or cooling tower with water-loop heat pumps, Reference Design SEER, shall be determined using 0.78 kW/ton. For water-loop heat pumps, Reference Design SEER, shall be determined using 0.78 kW/ton. For water-loop heat pumps, Reference Design SEER, shall be determined using 0.78 kW/ton. For water-loop heat pumps, Reference Design SEER, shall be determined using 0.78 kW/ton. For water-loop heat pumps, Reference Design SEER, shall be determined using 0.78 kW/ton. For water-loop heat pumps, Reference Design SEER, shall be determined using 0.78 kW/ton. For water-loop heat pumps, Reference Design SEER, shall be determined using 0.78 kW/ton. For water-loop heat pumps, Reference Design SEER, shall be determined using 0.78 kW/ton. For water-loop heat pumps, Reference Design SEER, shall be determined using 0.78 kW/ton. For water-loop heat pump, SR/tong N/T RESNET / ICC Std. 301, temperature: Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301, temperature: Same as Energy reling he Rated Unit and no other units): of kWh per year Recirculation Pump Energy (for pumps serving the Rated Unit and no other units): as defined by ANSI / RESNET / ICC Std. 301, temperature: Same as Rated Were releater. Sees 0.	Cooling	Cooling capacity shall be selected in ac	cordance with ACCA Manual S based on loads calculate	d for the Reference Design in accordance with				
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System Type: Same as Rated Unit ² , except Reference Design shall be configured with air-source heat pump, electric strip heat, or electric baseboard heat; applicable efficiency selected from below Climate Zone: AC SEER: 13 13 Air-Source Heat Pump SEER: 13 15 Ground-Source Heat Pump EER: 13 15 Where system type is a chiller or cooling tower with water-loop heat pumps. Reference Design SEER _{es} shall be determined using 0.78 kWhon. For water-loop heat pumps. Reference Design SEER _{es} shall be determined using 0.78 kWhon. For water-loop heat pumps. Reference Design SEER _{es} shall be determined using 14 EI Service Water Task Temperature: Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301. vs. Heating Task Temperature: Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301. vs. Tesk Tesk Trick Std. Systems: Recirculation Pump Energy (for pumps serving the Rated Unit and no other units): 0 kWh per year Recirculation Pump Energy (for pumps serving the Rated Unit seas a system Stem Std. Restriculation Pump Energy (for pumps serving the Rated Unit uses a system Stem As the gas or propa model as instantaneous gas water heaters. Use 0.95 EF Fuel Type & System Type (when Rated Unit uses a system with a oil, electric, or other fuel type, model as 60 gallo pump water heater. Stelect applicable efficiency from below ⁶ CZ 4 C & S CZ 6 G G G G G <td>Gystems.</td> <td></td> <td>Tranabook or rundamentals, or an equivalent compute</td> <td></td>	Gystems.		Tranabook or rundamentals, or an equivalent compute					
air-source or ground-source heat pump, electric strip heat, or electric baseboard heat; applicable efficiency selected from below Climate Zone: CZ 4 C & 5 CZ 6 AC SEER: 13 13 Air-Source Heat Pump SEER: 15 15 Ground-Source Heat Pump EER: 15 15 where system type is a chiller or cooling tower with water-loop heat pumps. Reference Design SEER_e shall be determined using 0.78 kW/ton. For water-loop heat pumps, Reference Design SEER_e shall be determined using 0.78 kW/ton. For water-loop heat pumps, Reference Design SEER_e shall be determined using 0.78 kW/ton. For water-loop heat pumps, Reference Design SEER_e shall be determined using 0.78 kW/ton. For water-loop heat pumps, Reference Design SEER_e shall be determined using 0.78 kW/ton. For water-loop heat pumps, Reference Design SEER_e shall be determined using 0.78 kW/ton. For water-loop heat pumps, Reference Design SEER_e shall be determined using 0.78 kW/ton. For water-loop heat pumps, Reference Design SEER_e shall be determined using 0.78 kW/ton. For water-loop heat pumps, Reference Design SEER_e shall be determined using 0.78 kW/ton. For water-loop heat pumps, Reference Design SEER_e shall be determined using 0.78 kW/ton. For water-loop heat pumps, Reference Design SEER_e shall be determined using 0.78 kW/ton. For water-loop heat pumps, Reference Design SEER_e shall be determined using 0.78 kW/ton. For water-loop heat pumps, Reference Design SEER_e shall be determined using 0.78 kW/ton. For water-loop heat pumps, Reference Design SEER_e shall be determined using 0.78 kW/ton. For water-loop heat pumps. Reference Dust 0.8. For children State State 0.11 kESNET / ICC Std. 301. Text Care and State State State State D			cept Reference Design shall be configured with air-source	e heat pump where Rated Unit is modeled with				
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Ground-Source Heat Pump EER: n/a n/a Where system type is a chiller or cooling tower with water-loop heat pumps. Reference Design SEERe, shall be determined using 0.78 kW/ton. For water-loop heat pumps. Reference Design SEERe, shall be determined using 14 EI Service Use (Galons per Day): Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301, except for recresulting from R-3 pipe insulation and the equipment specified in the Lighting, Appliances, Fixtures & Internal Gains Section '' Water Tank Temperature: Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301 Recirculation Pump Energy. (for pumps serving the Rated Unit and no other units): o KWh per year Recirculation Pump Energy. (for pumps serving the Rated Unit and other units): as defined by ANSI / RESNET / ICC Std. 301, except for the type & System Type (when Rated Unit is served by a commercial system): Same as system serving the Rated Unit Pue & System Type (when Rated Unit is served by a commercial system): Same as system with a gas or propa model as instantaneous gas water heater. If Rated Unit uses a system with an oil, electric, or other fuel type, model as 60 gallo pump water heater. Select applicable efficiency from below ⁶ Climate Zone: 0.91 EF 0.91 EF 0.91 EF Electric DHW EF: 0.91 EF 0.91 EF 0.92 EF Thermal Duct Leakage to Outside: The greater of 4 CFM25 per 100 sq. ft. of conditioned floor area or 40 CFM25 Duct Leakage to Outside: The greater of 4 CFM25 per 100 sq. ft. of conditioned floor area or 40 CFM2		AC SEER:		13 13				
Where system type is a chiller or cooling tower with water-loop heat pumps, Reference Design SEER _{as} shall be determined in a the methodology for the Rated Unit in ANSI / RESNET / ICC Std. 301, using motor efficiency of 0.85. For chillers, Reference D shall be determined using 0.78 kW/ton, For water-loop heat pumps, Reference Design SER _{as} shall be determined using 14.78 kW/ton. For water-loop heat pumps, Reference Design SER _{as} shall be determined using 14.78 kW/ton. For water-loop heat pumps, Reference Design SER _{as} shall be determined using 14.78 kW/ton. For water-loop heat pumps, Reference Design SER _{as} shall be determined using 14.78 kW/ton. For water-loop heat pumps, Reference Design SER _{as} shall be determined using 14.78 kW/ton. For water-loop heat pumps, Reference Design SER _{as} shall be determined using 14.78 kW/ton. For water-loop heat pumps, Reference Design SER _{as} shall be determined using 14.78 kW/ton. For water-loop heat pumps, Reference Design SER _{as} shall be determined using 14.78 kW/ton. For water-loop heat pumps, Reference Design SER _{as} shall be determined using 14.78 kW/ton. For water-loop heat pumps, Reference Design SER _{as} shall be determined using 14.78 kW/ton. For water heater. If Reference Home, as defined by ANSI / RESNET / ICC Std. 301. Systems: Recirculation Pump Energy (for pumps serving the Rated Unit and other units): as defined by ANSI / RESNET / ICC Std. 301, umotor efficiency and using the same HP as the pump serving the Rated Unit is: as vestem serving the Rated Unit the served by residential system): If Rated Unit uses a system with a gas or propa model as instantaneous gas water heater. If Rated Unit uses a system with an oil, electric, or other fuel type, model as 60 gallo pump water heater. Select applicable efficiency for 100 sq. ft. of conditioned floor area or 40 CFM25 Duct Leakage to Outside: The greater of 4 CFM25 per 100 sq. ft. of conditioned floo		Air-Source Heat Pump SEER:		15 15				
Intermethodology for the Rated Unit in ANSI / RESNET / ICC Std. 301, using motor efficiency of 0.85. For chillers, Reference Design SEER, shall be determined using 0.78 kW/ton. For water-loop heat pumps, Reference Design SEER, shall be determined using 14 Eff Service Use (Gallons per Day): Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301, except for rec Water resulting from R-3 pipe insulation and the equipment specified in the Lighting, Appliances, Fixtures & Internal Gains Section ⁹ Tank Temperature: Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301, except for rec Recirculation Pump Energy (for pumps serving the Rated Unit and no other units): as defined by ANSI / RESNET / ICC Std. 301, u motor efficiency and using the same HP as the pump serving the Rated Unit Fuel Type & System Type (when Rated Unit is served by a commercial system): Same as system serving the Rated Unit. For theaters, use 85%, E, For electric water heaters, use 0.95 EF Fuel Type & System Type (when Rated Unit is served by residential systems): If Rated Unit uses a system with a gas or propa model as instantaneous gas water heater. If Rated Unit uses a system with an oil, electric, or other fuel type, model as 60 gallo pump water heater. Select applicable efficiency from below ⁶ CImate Zone: CZ 4 C & 5 CZ 6 Gas DHW EF: 0.91 EF 0.91 EF Duct Leakage to Outside: The greater of 4 CFM25 per 100 sq. ft. of conditioned floor area or 40 CFM25 Duct Leakage to Outside: The greater of 4 CFM25								
shall be determined using 0.78 kW/ton. For water-loop heat pumps, Reference Design SEERes shall be determined using 14 Ef Service Use (Gallons per Day): Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301, except for resulting from R-3 pipe insulation and the equipment specified in the Lighting, Appliances, Fixtures & Internal Gains Section ⁹ Tank Temperature: Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301 Rescirculation Pump Energy (for pumps serving the Rated Unit and other units): 0 kW/h per year Recirculation Pump Energy (for pumps serving the Rated Unit and other units): 0 kW/h per year Recirculation Pump Energy (for pumps serving the Rated Unit and other units): 0 kW/h per year Recirculation Pump Energy (for pumps serving the Rated Unit and other units): 0 kW/h per year Recirculation Pump Energy (for pumps serving the Rated Unit and other units): 0 kW/h per year Recirculation Pump Energy (for pumps serving the Rated Unit and other units): 0 kW/h per year Recirculation Pump Energy (for pumps served by a commercial system): Same as system with a gas or propa model as instantaneous gas water heater. If Rated Unit uses a system with an oil, electric, or other fuel type, model as 60 gallo pump water heater. Select applicable efficiency from below ⁶ Climate Zone: CZ 4 C & 5 CZ 6 Gas DHW EF: 0.91 EF 0.91 EF Electric DHW EF: 0.91 EF 0.91 EF Duct Leakage to Outside: The greater of 4 CFM25 per 100 sq. ft. of conditioned floor								
Service Water Use (Gallons per Day): Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301, except for reconstruction of the equipment specified in the Lighting, Appliances, Fixtures & Internal Gains Section ⁹ Tank Temperature: Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301 Recirculation Pump Energy (for pumps serving the Rated Unit and no other units): as defined by ANSI / RESNET / ICC Std. 301, reconstruction Pump Energy (for pumps serving the Rated Unit and no other units): as defined by ANSI / RESNET / ICC Std. 301, reconstruction Pump Energy (for pumps serving the Rated Unit and no other units): as defined by ANSI / RESNET / ICC Std. 301, reconstruction Pump Energy (for pumps serving the Rated Unit and no other units): as defined by ANSI / RESNET / ICC Std. 301, reconstruction Pump Energy (for pumps serving the Rated Unit and no other units): as defined by ANSI / RESNET / ICC Std. 301, reconstruction Pump Energy (for pumps serving the Rated Unit and no other units): as defined by ANSI / RESNET / ICC Std. 301, reconstruction Pump Energy (for pumps serving the Rated Unit and no other units): as defined by ANSI / RESNET / ICC Std. 301, reconstruction Pump Energy (for pumps serving the Rated Unit and no other units): as defined by ANSI / RESNET / ICC Std. 301, reconstruction Pump Energy (for pumps serving the Rated Unit and no other units): as defined by ANSI / RESNET / ICC Std. 301, reconstruction Pump Energy (for pumps serving the Rated Unit and no other units): as defined by ANSI / RESNET / ICC Std. 301, reconstruction Pump Energy (for pumps serving the Rated Unit and no other units): as defined by ANSI / RESNET / ICC Std. 301 Thermal Distribution Electric DHW EF: 2.5 EF 2.0 EF Duct Leakage to Outside: The greater of								
Water resulting from R-3 pipe insulation and the equipment specified in the Lighting, Áppliances, Fixtures & Internal Gains Séction ⁹ Yeating Tank Temperature: Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301 Recirculation Pump Energy (for pumps serving the Rated Unit and no other units): as defined by ANSI / RESNET / ICC Std. 301. motor efficiency and using the same HP as the pump serving the Rated Unit Fuel Type & System Type (when Rated Unit is served by a commercial system): Same as system serving the Rated Unit. For theaters, use 85% E, For electric water heaters, use 0.95 EF Fuel Type & System Type (when Rated Unit is served by residential systems): If Rated Unit uses a system with a gas or propa model as instantaneous gas water heater. If Rated Unit uses a system with an oil, electric, or other fuel type, model as 60 gallo pump water heater. Select applicable efficiency from below ⁶ Climate Zone: CZ 4 C & 5 CZ 6 Gas DHW EF: 0.91 EF 0.91 EF Duct Leakage to Outside: The greater of 4 CFM25 per 100 sq. ft. of conditioned floor area or 40 CFM25 Duct Leakage to Outside: The greater of 4 CFM25 per 100 sq. ft. of conditioned floor area or 40 CFM25 Duct Leakage to Outside: The greater of 4 CFM25 per 100 sq. ft. of conditioned floor area or 40 CFM25 Duct Surface Area: Same as Rated Unit ² Supply and Return Duct Locations shall be configured according to the table below Celling Type: All O One Story Unit: 100% Conditio								
Heating Systems: Tank Temperature: Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301 Recirculation Pump Energy (for pumps serving the Rated Unit and no other units): 0 KWh per year Recirculation Pump Energy (for pumps serving the Rated Unit and no other units): 0 kWh per year Recirculation Pump Energy (for pumps serving the Rated Unit and no other units): 0 kWh per year Recirculation Pump Energy (for pumps serving the Rated Unit and no other units): 0 kWh per year Recirculation Pump Energy (for pumps serving the Rated Unit and no other units): 0 kWh per year Recirculation Pump Energy (for pumps serving the Rated Unit as defined by ANSI / RESNET / ICC Std. 301, umotor efficiency and using the same HP as the pump serving the Rated Unit. Fuel Type & System Type (when Rated Unit is served by a commercial system): Same as system with a gas or propa model as instantaneous gas water heater. If Rated Unit uses a system with an oil, electric, or other fuel type, model as 60 gallo pump water heater. Select applicable efficiency from below ⁶ Climate Zone: CZ 4 C & 5 CZ 6 Gas DHW EF: 0.91 EF Lectric DHW EF: 2.5 EF 2.0 EF Duct Leakage to Outside: The greater of 4 CFM25 per 100 sq. ft. of conditioned floor area or 40 CFM25 Duct Surface Area: Same as Rated Unit ² Supply and Return Duct Locations shall be configured according to the table below Ceiling Type: 100% Adiabatic Vent Surface Area: Same as Energy Rating Reference Home, but with offsets for a programmable thermostat, as defined not seresNET / ICC Std. 301 Infiltratio								
Systems: Recirculation Pump Energy (for pumps serving the Rated Unit and other units): as defined by ANSI / RESNET / ICC Std. 301, a motor efficiency and using the same HP as the pump serving the Rated Unit Fuel Type & System Type (when Rated Unit is served by a commercial system): Same as system serving the Rated Unit. Fuel Type & System Type (when Rated Unit is served by a commercial system): Same as system with a gas or propa model as instantaneous gas water heater. If Rated Unit uses a system with an oil, electric, or other fuel type, model as 60 gallo pump water heater. Select applicable efficiency from below ⁶ Climate Zone: CZ 4 C & 5 CZ 6 Gas DHW EF: 0.91 EF 0.91 EF Duct Leakage to Outside: The greater of 4 CFM25 per 100 sq. ft. of conditioned floor area or 40 CFM25 Duct Surface Area: Same as Rated Unit ² Systems: Duct Insulation: R-8 on all ducts located in unconditioned space Duct Surface Area: Same as Rated Unit ² Supply and Return Duct Locations shall be configured according to the table below. Ceiling Type: All O One Story Unit: 100% Conditioned 100% All other Units: 100% Conditioned 75% Attic / 25% Thermostat: Type: Programmable Temperature Setpoints: Same as Energy Rating Reference Home, but with offsets for a programmable thermostat, as defined ICC Std. 301 Infiltration & Mechanical Compartmentalization Rates: 0.3 cfm50/ft ² Enclosure Area, with Aext applied to calculate Infi								
Recirculation Pump Energy (for pumps serving the Rated Unit and other units): as defined by ANSI / RESNET / ICC Std. 301, u motor efficiency and using the same HP as the pump serving the Rated Unit Fuel Type & System Type (when Rated Unit is served by a commercial system): Same as system serving the Rated Unit. For t heaters, use 85% E, For electric water heaters, use 0.95 EF Fuel Type & System Type (when Rated Unit is served by residential system): If Rated Unit uses a system with a gas or propa model as instantaneous gas water heater. If Rated Unit uses a system with an oil, electric, or other fuel type, model as 60 gallo pump water heater. Select applicable efficiency from below ⁶ Climate Zone: CZ 4 C & 5 Gas DHW EF: 2.5 EF 2.0 EF Duct Leakage to Outside: The greater of 4 CFM25 per 100 sq. ft. of conditioned floor area or 40 CFM25 Duct Insulation: R-8 on all ducts located in unconditioned space Duct Surface Area: Same as Rated Unit ² Supply and Return Duct Locations shall be configured according to the table below Ceiling Type: 100% Adiabatic One Story Unit: 100% Conditioned 100% Conditioned 75% Attic / 25% Thermostat: Type: Programmable Temperature Setpoints: Same as Energy Rating Reference Home, but with offsets for a programmable thermostat, as defined RESNET / ICC Std. 301	0							
motor efficiency and using the same HP as the pump serving the Rated Unit Fuel Type & System Type (when Rated Unit is served by a commercial system): Same as system serving the Rated Unit. For the heaters, use 85% E., For electric water heaters, use 0.95 EF Fuel Type & System Type (when Rated Unit is served by residential systems): If Rated Unit uses a system with a gas or propa model as instantaneous gas water heater. If Rated Unit uses a system with an oil, electric, or other fuel type, model as 60 gallo pump water heater. Select applicable efficiency from below ⁶ Climate Zone: CZ 4 C & 5 CZ 6 Gas DHW EF: 0.91 EF 0.91 EF Electric DHW EF: 2.5 EF 2.0 EF Duct Leakage to Outside: The greater of 4 CFM25 per 100 sq. ft. of conditioned floor area or 40 CFM25 Duct surface Area: Same as Rated Unit ² Systems: Duct Locations shall be configured according to the table below Ceiling Type: All Or One Story Unit: 100% Adiabatic All Or All other Units: 100% Conditioned 75% Attic / 25% Thermostat: Type: Programmable Temperature Setpoints: Same as Energy Rating Reference Home, but with offsets for a programmable thermostat, as defined RESNET / ICC Std. 301 Mechanical ventilation system without heat recovery Rate: CFM = 0.01 * CFA + 7.5 * (Nbr + 1), where CFA = Conditioned Floor Area and Nbr = Number of Bedrooms; Runtime: 24	eyetenie.							
Fuel Type & System Type (when Rated Unit is served by a commercial system): Same as system serving the Rated Unit. For theaters, use 0.95 EF Fuel Type & System Type (when Rated Unit is served by residential systems): If Rated Unit uses a system with a gas or propare model as instantaneous gas water heater. If Rated Unit uses a system with an oil, electric, or other fuel type, model as 60 gallo pump water heater. Select applicable efficiency from below ⁶ Climate Zone: CZ 4 C & 5 CZ 6 Gas DHW EF: 0.91 EF 0.91 EF Electric DHW EF: 2.5 EF 2.0 EF Duct Leakage to Outside: The greater of 4 CFM25 per 100 sq. ft. of conditioned floor area or 40 CFM25 Duct Isulation: R-8 on all ducts located in unconditioned space Duct Surface Area: Same as Rated Unit ² Supply and Return Duct Locations shall be configured according to the table below Ceiling Type: 100% Adiabatic All Of One Story Unit: 100% Conditioned 75% Attic / 25% Thermostat: Type: Programmable Temperature Setpoints: Same as Energy Rating Reference Home, but with offsets for a programmable thermostat, as defined in Rechanical ventilation system without heat recovery Rate: CFM = 0.01 * CFA + 7.5 * (Nbr + 1), where CFA = Conditioned Floor Area and Nbr = Number of Bedrooms; Runtime: 24								
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Rate: CFM = 0.01 * CFA + 7.5 * (Nbr + 1), where CFA = Conditioned Floor Area and Nbr = Number of Bedrooms; Runtime: 24								
	Ventilation:							
Fan Watts: Watts = CFM Rate / 2.8 CFM per Watt, where CFM Rate is determined above		Rate: CFM = 0.01 * CFA + 7.5 * (Nbr + 1), where CFA = Conditioned Floor Area and Nbr = Number of Bedrooms; Runtime: 24 Hours / Day						
		Fan Watts: Watts = CFM Rate / 2.8 CFM per Watt, where CFM Rate is determined above						
Climate Zone: CZ 4 C & 5 CZ 6								
Ventilation Type: Exhaust Exhaust		Ventilation Type:	Exh	aust Exhaust				



Oregon and Washington ERI Target Procedure (ANSI 301-20194) ENERGY STAR Multifamily New Construction, Version 1.2 (Rev. 01)



Oregon and Washington ERI Target Procedure (ANSI 301-20194) ENERGY STAR Multifamily New Construction, Version 1.2 (Rev. 01)

Exhibit 1: Expanded ENERGY STAR Multifamily Reference Design Definition (Continued)

			OTAR Manual		Design Denni		, ca j	
Lighting,	Lighting: Fraction of qualifying Tier I fixtures to all fixtures in qualifying light fixture locations 90% for interior; 0% for exterior and garage							
Appliances,	Refrigerator: 423 kWh per year							
Fixtures & Internal Gains:	Dishwasher: 0.66 EF, Place Setting Capacity Same as Rated Unit ² : use 12 settings if no dishwasher installed in Rated Unit							
	Clothes Washer: Use the ENERGY STAR values below, even if no clothes washer is installed or if the ratio of dwelling units to installed							
	washers is more than 14. Exception: If installed clothes washer is not available as ENERGY STAR certified (e.g., top-loading commercial							
	clothes washers, Combination All-In One Washer-Dryers), model the same as the Rated Unit clothes washer							
		LER	\$/kWh	AGC	\$/therm	CAPw	IMEF	
	ENERGY STAR	152	0.12	12	1.09	4.2	2.06	
	Clothes Dryer: Field Use Factor is 1.04 and CEF is 3.93 for electric and 3.43 for gas, even if no clothes dryer is installed. Exception: If installed clothes dryer is not available as ENERGY STAR certified (e.g., commercial clothes dryers, Combination All-In One Washer-Dryers), model the							
	same as the Rated Unit clothes dryer							
	Ceiling Fan: 122 CFM per Watt; Quantity = Number of bedrooms + 1 when ceiling fans present in the Rated Unit; otherwise Quantity = 0							
	Water fixtures: all showers and faucets ≤ 2.0 gpm							
	Internal Gains: Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301, except for adjustments for the lighting, refrigerator, dishwasher, clothes washer, clothes dryer, and ceiling fans specified in this section							
Internal	Same as Energy Rating Reference Home, as defined by ANSI / RESNET / ICC Std. 301							
Mass:	Additional mass specifically designed as a Thermal Storage Element for the Rated Unit shall be excluded							



Oregon and Washington ERI Target Procedure (ANSI 301-201<u>9</u>4) ENERGY STAR Multifamily New Construction, Version 1.2 (Rev. 01)

Footnotes:

- Any parameter not specified in this exhibit shall be identical to the value entered for the Rated Unit. Where envelope building components do not exist in the Rated Unit, such as a foundation or slab, they should not be modeled in the ENERGY STAR Multifamily Reference Design. Where the envelope component is adiabatic in the Rated Unit, it shall also be adiabatic in the Multifamily Reference Design.
- 2. "Same as Rated Unit" indicates that the parameter shall be identical to the value entered for the Rated Unit.
- 3. Slab insulation R-values represent nominal insulation levels; and assembly U-factors for foundations, floors, walls, and ceilings represent the overall assembly, inclusive of sheathing materials, cavity insulation, installation quality, framing, and interior finishes.
- 4. If software allows the user to specify the thermal boundary location independent of the conditioned space boundary in the basement of the Rated Unit, then the thermal boundary of the ENERGY STAR Multifamily Reference Design shall be aligned with this boundary. For example, if the thermal boundary is located at the walls, then the wall insulation shall be configured as if it was a conditioned basement. If the thermal boundary is located at the floor above the basement, then the floor insulation shall be configured as if it was a floor over an unconditioned space.
- 5. When determining the ENERGY STAR ERI Target, the following formula shall be used to determine total window area of the ENERGY STAR Multifamily Reference Design:

$$AG = 0.15 \times CFA \times FA \times F$$

Where:

- AG = Total glazing area
- CFA = Total conditioned floor area
- FA = (Gross above-grade thermal boundary wall area) / (Gross above-grade boundary wall area + 0.5 x Gross below-grade thermal boundary wall area)
- F = 1- 0.44 x (Gross common wall area) / (Gross above-grade thermal boundary wall area + Gross common wall area)

And where:

- Thermal boundary wall is any wall that separates conditioned space from unconditioned space, outdoor environment, or the surrounding soil;
- Above-grade thermal boundary wall is any portion of a thermal boundary wall not in contact with soil;
- Below-grade boundary wall is any portion of a thermal boundary wall in soil contact; AND
- Common wall is the total wall area of walls adjacent to other conditioned space, not including foundation walls.
- 6. Fuel type(s) shall be same as Rated Unit, including any dual-fuel equipment where applicable. For a Rated Unit with multiple heating, cooling, or water heating systems using different fuel types, the applicable system capacities and fuel types shall be weighted in accordance with the loads distribution (as calculated by accepted engineering practice for that equipment and fuel type) of the multiple systems, unless otherwise specified by ANSI / RESNET / ICC Std. 301.
- 7. For a Rated Unit without a heating system, the ENERGY STAR Multifamily Reference Design shall be configured with a 78% AFUE gas furnace system, unless the Rated Unit has no access to natural gas or fossil fuel delivery. In such cases, the ENERGY STAR Reference Multifamily Design shall be configured with a 7.7 HSPF air-source heat pump.
- 8. For a Rated Unit without a cooling system, the ENERGY STAR Multifamily Reference Design shall be configured with a 13 SEER electric air conditioner.
- 9. That is to say, representative of standard-flow plumbing fixtures, reference clothes washer gallons per day, standard distribution system water use effectiveness, a hot water piping ratio of 1.0, no pipe insulation, and no drain water heater recovery.

In accordance with the RESNET Guidelines for Multifamily Energy Ratings, for a Rated Unit with conditioned space below, software shall either automatically apply a 15% reduction to the compartmentalization results of the Rated Unit or instruct the Rater to apply the reduction. If automatically applied, the software shall make that known, such that the Rater does not also apply the same reduction. The 15% reduction shall not be applied if the Rated Unit is located in a building where outdoor air for the Rated Unit is supplied to the corridor and is not directly ducted either into the Rated Unit or into the Rated Unit's HVAC system.