National HVAC Design Report
ENERGY STAR Certified Homes, Version 3 / 3.1 (Rev. 09)

HVAC Designer Responsibilities:
- Complete one National HVAC Design Report for each system design for a house plan, created for either the specific plan configuration (i.e., elevation, option, orientation, & county) of the home to be certified or for a plan that is intended to be built with different configurations (i.e., different elevations, options, and/or orientations). Visit www.energystar.gov/newhomeshvacdesign and see Footnote 2 for more information.
- Obtain efficiency features (e.g., window performance, insulation levels, and infiltration rate) from the builder or Home Energy Rater.
- Provide the completed National HVAC Design Report to the builder or credentialed HVAC contractor and to the Home Energy Rater.

1. Design Overview

1.1 Designer name: Jeremy Begley Designer company: HVAC Design Partners Date: Mar 09, 2019
1.2 Select which party you are providing these design services to: ■ Builder or ☐ Credentialed HVAC contractor
1.3 Name of company you are providing these design services to (if different than Item 1.1):
1.4 Area that system serves: ■ Whole-house ☐ Upper-level ☐ Lower-level ☐ Other
1.5 Is cooling system for a temporary occupant load? ☐ Yes ■ No
1.6 House plan: Check box to indicate whether the system design is site-specific or part of a group:
■ Site-specific design. Option(s) & elevation(s) modeled:
☐ Group design. Group #: 0 out of 0 total groups for this house plan. Configuration modeled:

2. Whole-House Mechanical Ventilation Design		Designer Verified
Airflow:		
	2.1 Ventilation airflow design rate & run-time meet the requirements of ASHRAE 62.2-2010, 2013 or 2016	■
	2.2 Ventilation airflow rate required by 62.2 for a continuous system: 0 CFM	-
	2.3 Design for this system: Vent. airflow rate: 0 CFM Run-time per cycle: 0 minutes Cycle time: 0 minutes	-
System Type & Controls:		
	2.4 Specified system type: ☐ Supply ☐ Exhaust ■ Balanced	-
	2.5 Specified control location: (e.g., Master bath, utility room)	-
	2.6 Specified controls allow the system to operate automatically, without occupant intervention	☐
	2.7 Specified controls include a readily-accessible ventilation override and a label has also been specified if its function is not obvious (e.g., a label is required for a standalone wall switch, but not for a switch that's on the ventilation equipment)	☐
	2.8 No outdoor air intakes designed to connect to the return side of the HVAC system, unless specified controls operate intermittently and automatically based on a timer and restrict intake when not in use (e.g., motorized damper)	☐
Sound:	2.9 The fan of the specified system is rated ≤ 3 sones if intermittent and ≤ 1 sone if continuous, or exempted	☐
Efficiency:		
	2.10 If system utilizes the HVAC fan, then the specified fan type in Item 4.7 is ECM / ICM, or the specified controls will reduce the standalone ventilation run-time by accounting for hours when the HVAC system is heating or cooling	☐
	2.11 If bathroom fans are specified as part of the system, then they are ENERGY STAR certified	☐
Air Inlet Location: (Complete this section if system has a specified air inlet location; otherwise check "N/A")		☐ N/A
	2.12 Inlet pulls ventilation air directly from outdoors and not from attic, crawlspace, garage, or adjacent dwelling unit	☐
	2.13 Inlet is ≥ 2 ft. above grade or roof deck; ≥ 10 ft. of stretched-string distance from known contamination sources (e.g., stack, vent, exhaust, vehicles) not exiting the roof, and ≥ 3 ft. from known sources exiting the roof	☐

3. Room-by-Room Heating & Cooling Loads										
3.1 Room-by-room loads calculated using: ■ Unabridged ACCA Manual J v8 ☐ 2013 ASHRAE Fundamentals ☐ Other per AHJ										-
3.2 Indoor design temperatures used in loads are 70°F for heating and 75°F for cooling										■
3.3 Outdoor design temperatures used in loads: (See Footnote 12 and energystar.gov/hvacdesigntemps) County & State, or US Territory, selected: Chautauqua, NY Cooling season: 81 °F Heating season: 5 °F										-
3.4 Number of occupants used in loads: 1										-
3.5 Conditioned floor area used in loads: 620 Sq. Ft.										-
3.6 Window area used in loads: 67 Sq. Ft.										-
3.7 Predominant window SHGC used in loads: 0.27										-
3.8 Infiltration rate used in loads: Summer: 0.21 Winter: 0.51										-
3.9 Mechanical ventilation rate used in loads: 0 CFM										-
Loads At Design Conditions (kBtuh)		**N**	**NE**	**E**	**SE**	**S**	**SW**	**W**	**NW**	-
Cooling	3.10 Sensible heat gain (By orientation)	2.2	2.4	2.0	2.3	2.3	2.6	2.3	2.6	-
	3.11 Latent heat gain (Not by orientation)	0.5								-
	3.12 Total heat gain (By orientation)	2.7	2.9	2.5	2.8	2.8	3.1	2.8	3.1	-
	3.13 Maximum – minimum total heat gain (Item 3.12) across orientations = 0.6 kBtuh						Variation is ≤ 6 kBtuh			■
Heating	3.14 Total heat loss (Not by orientation)	7.3								-

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4. Heating & Cooling Equipment Selection				**Designer Verified**
4.1 Equipment selected per ACCA Manual S (see Footnote 18 & 19)				☐
Air Conditioner / Heat Pump (Complete if air conditioner or heat pump will be installed; otherwise check "N/A")				☐ N/A
4.2 Equipment type:	☐ Cooling-only air conditioner or ■ Cooling & heating heat pump			-
4.3 Condenser manufacturer & model:	Mitsubishi MXZ_4C36NAHZ			-
4.4 Evaporator / fan coil manufacturer & model:	Mitsubishi SEZ-KD09NA			-
4.5 AHRI reference #:				-
4.6 AHRI listed efficiency:	0 / 16.9 EER / SEER	Air-source heat pump: 10.5 HSPF	Ground-source heat pump: COP	-
4.7 Evaporator fan type:	☐ PSC	☐ ECM / ICM	■ Other:	-
4.8 Compressor type:	■ Single-speed	☐ Two-speed	☐ Variable-speed	-
4.9 Latent capacity at design conditions, from OEM expanded performance data:			0 kBtuh	-
4.10 Sensible capacity at design conditions, from OEM expanded performance data:			0 kBtuh	-
4.11 Total capacity at design conditions, from OEM expanded performance data:			0 kBtuh	-
4.12 Air-source heat pump capacity:	At 17°F: 10.9 kBtuh	At 47°F: 10.9 kBtuh	☐ N/A	-
4.13 Cooling sizing % = Total capacity (Item 4.11) divided by maximum total heat gain (Item 3.12):			0 %	-
4.14 Complete this Item if Condition B Climate will be used to select sizing limit in Item 4.15. Otherwise, check "N/A":			■ N/A	-
4.14.1 Load sensible heat ratio = Max. sensible heat gain (Item 3.10) / Max. total heat gain (Item 3.12) =			85%	-
4.14.2 HDD / CDD ratio (Visit energystar.gov/hvacdesigntemps to determine this value for the design location)			3.1	-
4.15 Check box of applicable cooling sizing limit from chart below:				-

Equipment Type (Per Item 4.2) & Climate Condition (Per Item 4.14)	Compressor Type (Per Item 4.8)		
	Single-Speed	Two-Speed	Variable-Speed
For Cooling-Only Equipment or For Cooling Mode of Heat Pump in Condition A Climate	☐ Recommended: 90 – 115% Allowed: 90 – 130%	☐ Recommended: 90 – 120% Allowed: 90 – 140%	☐ Recommended: 90 – 130% Allowed: 90 – 160%
For Cooling Mode of Heat Pump in Condition B Climate	☐ 90% - 100%, plus 15 kBtuh	☐ 90% - 100%, plus 15 kBtuh	☐ 90% - 100%, plus 15 kBtuh

4.16 Cooling sizing % (4.13) is within cooling sizing limit (4.15)	☐
Furnace (Complete if furnace will be installed; otherwise check "N/A")	■ N/A
4.17 Furnace manufacturer & model:	-
4.18 Listed efficiency: AFUE	-
4.19 Total capacity: kBtuh	-
4.20 Heating sizing % = Total capacity (Item 4.19) divided by total heat loss (Item 3.14): 0 %	-
4.21 Check box of applicable heating sizing limit from chart below:	-

When Used for Heating Only	When Paired With Cooling
☐ 100 - 140%	☐ Recommended: 100 – 140% Allowed: 100 – 400%

4.22 Heating sizing % (4.20) is within heating sizing limit (4.21)	☐
5. Duct Design (Complete if heating or cooling equipment will be installed with ducts; otherwise check "N/A")	☐ N/A
5.1 Duct system designed for the equipment selected in Section 4, per ACCA Manual D	■
5.2 Design HVAC fan airflow: Cooling mode 317 CFM Heating mode 317 CFM	-
5.3 Design HVAC fan speed setting (e.g., low, medium, high): Cooling mode Medium Heating mode Medium	-
5.4 Design total external static pressure (corresponding to the mode with the higher airflow in Item 5.2): 0.2 IWC	-
5.5 Room-by-room design airflows documented below (which must sum to the mode with the higher airflow in Item 5.2)	-

	Room Name	Design Airflow (CFM)		Room Name	Design Airflow (CFM)		Room Name	Design Airflow (CFM)
1	Bath 2	22	12			23		
2	Bedroom 1	149	13			24		
3	Bedroom 2	147	14			25		
4	Closet 2	0	15			26		
5	Rear Landing	0	16			27		
6	Rear Stairs	0	17			28		
7			18			29		
8			19			30		
9			20			31		
10			21			32		
11			22				Total for all rooms	317