

Home Address: Unit 1F 1715 W. IDAH	O ST City: Boise	State	ID Zij	Code: 83	3702
System Description ² FC-105A, FC-105B and FC-10	5CCooling system for ten	porary occupant load	? ³ Yeş □ No		
1. Whole-Building Mechanical Ventilation Des	sign ⁴		Builder Verified ⁵	Cont. Verified ⁶	N/A
1.1 Ventilation system installed that has been des but not limited to, requirements in Items 1.2-1.5	igned to meet ASHRAE 62.2-2010 red	quirements including,	Ø	©	
1.2 Ventilation system does not utilize an intake du is designed to operate intermittently and auton when not in use (e.g., motorized damper).			e	rig/	-
1.3 Documentation is attached with ventilation system of each ventilation cycle.	em type, location, design rate, and frec	uency and duration	Ø	ď	-
1.4 If present, continuously-operating vent. & exhau					0
1.5 If present, intermittently-operating whole-house least once per day and at least 10% of every 24	hours.				0
2. Heating & Cooling System Design 4,8 - Paral temperatures, home orientation, number of bedrooms, infiltration rate, mechanical ventilation rate, presence of	conditioned floor area, window area, pre	dominant window perfo.	rmance and ir	sulation level	ls,
	B ☑ 2009 ASHRAE ☐ Other:		<u> </u>		Ţ-
2.2 Duct Design Method:	☐ Manual D ☑ Other: Enginee	1	V		
2.3 Equipment Selection Method:	☐ OEM Rec. ☐ Other: Enginee	1	v		
2.4 Outdoor Design Temperatures: 9 Location: Boi	se 1%: 95 °F 99%: 10	- ! °F	Ø		
2.5 Orientation of Rated Home (e.g., North, South):			7		-
2.6 Number of Occupants Served by System: 10	3	-			-
2.7 Conditioned Floor Area in Rated Home:	696	Sa. Ft.	V		
2.8 Window Area in Rated Home:	93	Sa. Ft.			
2.9 Predominant Window SHGC in Rated Home: 11	0.46				<u> </u>
2.10 Infiltration Rate in Rated Home: 12	Summer: average Winter: average				·
2.11 Mechanical Ventilation Rate in Rated Home:	45	- CFM	0		-
2.12 Design Latent Heat Gain:	561	BTUh			
2.13 Design Sensible Heat Gain:	13,608	BTUh			_
2.14 Design Total Heat Gain:	14,169	BTUh			-
2.15 Design Total Heat Loss:	11,009	BTUh			
2.16 Design Airflow: ¹³	Equipment supply	-			
2.17 Design Duct Static Pressure; 14		In, Water Column			0
2.18 Full Load Calculations Report Attached ¹⁵		_in. vvater Coldini)			-
3. Selected Cooling Equipment, If Cooling Eq	uinment to be Installed	OF THE STATE OF TH			
3.1 Condenser Manufacturer & Model:	Samsung model JXH36				
3.2 Evaporator / Fan Coil Manufacturer & Model:	Samsung model RNS07 and RNS0	(
3.3 AHRI Reference #: 16	205291855				
3.4 Listed Efficiency:	10.9 EER 18.0 SEE	R	7		
	Fixed orifice		D		
3.6 Refrigerant Type: ☑	R-410a				
3.7 Fan Speed Type: ¹⁷ ☐ Fixed ☑	Variable (ECM / ICM) ☐ Other:				
3.8 Listed Sys. Latent Capacity at Design Cond.: 18		BTUh			V
3.9 Listed Sys. Sensible Capacity at Design Cond.:		BTUh			9
3.10 Listed Sys. Total Capacity at Design Cond.: 18	36,000	BTUh			
3.11 If Listed Sys. Latent Capacity (Value 3.8) ≤ De certified dehumidifier installed					0
3.12 Listed Sys. Total Capacity (Value 3.10) is 95-nominal size ^{8, 19}	115% of Design Total Heat Gain (Value	e 2.14) or next	Ð		
3.13 AHRI Certificate Attached 16					Ū
4. Selected Heat Pump Equipment, If Heatpun					
	PF or Ground-Source: COP		0		
	h Efficiency: COP 20				
4.3 Performance at 47°F: Capacity 36,000 BTU	h Efficiency: COP 20		2		



5. Selected Furnace, If Furnace to be Installed	Verified 5	Verified ⁶	N/A
5.1 Furnace Manufacturer & Model:			Ø
5.2 Listed Efficiency: AFUE			Ø
5.3 Listed Output Heating Capacity:BTUh			v
5.4 Listed Output Heat. Cap. (Value 5.3) is 100-140% of Design Total Heat Loss (Value 2.15) or next nominal size 8.21			Ø
6. Refrigerant Tests - Run system for 15 minutes before testing			
Note: If outdoor ambient temperature at the condenser is ≤ 55°F or, if known, below the manufacturer-recommended the cooling cycle, then the system shall include a TXV, and the contractor shall mark "N/A" on the Checklist for Section	minimum operati n 6 & 7. ²²	ng temperatu	ire for
6.1 Outdoor ambient temperature at condenser:°F DB			Ø
6.2 Return-side air temperature inside duct near evaporator, during cooling mode: °F WB			Ø
6.3 Liquid line pressure:psig			Ø
6.4 Liquid line temperature: °F DB			Ø
6.5 Suction line pressure:psig			2
6.6 Suction line temperature:°F DB			
7. Refrigerant Calculations			
For System with Thermal Expansion Valve (TXV):			
7.1 Condenser saturation temperature: °F DB (Using Value 6.3)			0
7.2 Subcooling value: °F DB (Value 7.1 - Value 6.4)			
7.3 OEM subcooling goal: °F DB			0
7.4 Subcooling deviation: "F DB (Value 7.2 – Value 7.3)			2
For System with Fixed Orifice:			
7.5 Evaporator saturation temperature: °F DB (Using Value 6.5)			
7.6 Superheat value: °F DB (Value 6.6 – Value 7.5)	(
7.7 OEM superheat goal: °F DB (Using superheat tables and Values 6.1 & 6.2)			2
7.8 Superheat deviation: °F DB (Value 7.7)			Ø
7.9 Value 7.4 is ± 3°F or Value 7.8 is ± 5°F			Ø
7.10 An OEM test procedure (e.g., as defined for a ground-source heat pump) has been used in place of sub-c super-heat process and documentation has been attached that defines this procedure	ooling or		Ø
8. Electrical Measurements – Taken at electrical disconnect while component is in operation			
8.1 Evaporator or furnace air handler fan: amperageline voltage			Ø
8.2 Condenser unit:amperageline voltage			Ø
8.3 Electrical measurements within OEM-specified tolerance of nameplate value	j		Ø
9. Air Flow Tests			
9.1 Air volume at evaporator: CFM			Ø
9.2 Test performed in which mode? Heating Cooling	1		
9.3 Return duct static pressure: IWC Test Hole Location: ²³			V
9.4 Supply duct static pressure: IWC Test Hole Location: ²³			
9.5 Test hole locations are well-marked and accessible ²³			Ø
9.6 Airflow volume at evaporator (Value 9.1), at fan design speed and full operating load, ± 15% of the airflow re system design (Value 2.16) or within range recommended by OEM	equired per		2
10. Air Balance			
10.1 Balancing report prepared and attached indicating the room name and design airflow for each supply and r individual room airflows measured and documented through one of the following options:	eturn register.	n addition, fi	inal
10.1.1 Measured by contractor using ANSI / ACCA 5 QI-2007 protocol, documented by contractor on the breport, & verified by contractor to be within the greater of ± 20% or 25 CFM of design airflow ²⁴ , OR;	alancing		2
10.1.2 To be measured, documented, and verified by a Rater per Item 1.4.2 of the HVAC System QI Rater	Checklist		
11. System Controls			
11.1 Operating and safety controls meet OEM requirements			V
 12. Drain pan 12.1 Corrosion-resistant drain pan, properly sloped to drainage system, included with each HVAC component the condensate ²⁵ 	at produces		
HVAC Company Name: Advanced Heating And Cooling Credentialing Organization	ration: ACCA /	ΔF / Other	
HVAC Contractor Name: Caleb Knutson HVAC Contractor Signature:	/	5/8/23	
Builder Name: 5 Visev Building Builder Signature: 5 David Fielding	Date		23



1. This Checklist is designed to align with the requirements of ASHRAE 62.2-2010 and published addenda and ANSI / ACCA's 5 QI-2007 protocol, thereby improving the performance of HVAC equipment in new homes when compared to homes built to minimum code. However, these features alone cannot prevent all ventilation, indoor air quality, and HVAC problems (e.g., those caused by a lack of maintenance by occupants). Therefore, this Checklist is not a guarantee of proper ventilation, indoor air quality, or HVAC performance.

This Checklist applies to ventilation systems; to split air conditioners, unitary air conditioners, air-source heat pumps, and water-source (i.e., geothermal) heat pumps up to 65,000 Btu / h with forced-air distribution systems (i.e., ducts) and to furnaces up to 225,000 Btu / h with forced-air distribution systems (i.e., ducts). All other permutations of equipment (e.g., boilers, mini-split / multi-split systems) and distribution systems are exempt. If the ventilation system is the only applicable system installed in the home, then only Section 1 shall be completed.

One Checklist shall be completed for each system and provided to the Rater.

- 2. Description of HVAC system location or area served (e.g., "whole house", "upper level", "lower level").
- Check "Yes" if this system is to handle temporary occupant loads. Such a system may be required to accommodate a significant number of
 guests on a regular or sporadic basis and shall be handled by a supplemental cooling system (e.g., a small, single-package unit or splitcoil unit) or by a system that can shift capacity from zone to zone (e.g., a variable volume system).
- 4. The person responsible for the heating, cooling, & ventilation design shall be responsible for completing Sections 1 and 2 of this Checklist.
- 5. For Sections 1 through 5, the 'Builder Verified' column shall be used to indicate items verified by the builder (or a firm or HERS Rater hired by the builder). If any Items have been marked 'Builder Verified', then the builder is responsible for these Items and must sign this Checklist. Note that builders are not permitted to verify any Items in Sections 6-12.
- 6. For Sections 1 through 5, the 'Cont. Verified' column shall be used to indicate Items verified by the credentialed contractor (or a firm or HERS Rater hired by the contractor). In contrast, for Sections 6 through 12, the 'Cont. Verified' column shall <u>only</u> be used to indicate Items verified by the credentialed contractor (i.e., neither a builder, nor a firm, nor a HERS Rater are permitted to verify Sections 6 12). The credentialed contractor is responsible for these Items and shall sign this Checklist.
- For proper procedures, exceptions, and selection methods see ASHRAE 62.2-2010 and published addenda. All components shall be
 designed and installed per local codes, manufacturers' installation instructions, engineering documents, and regional ENERGY STAR
 program requirements.
 - The system shall have at least one supply or exhaust fan with associated ducts and controls. Local exhaust fans are allowed to be part of an exhaust ventilation system. Outdoor air ducts connected to the return side of an air handler are allowed to be part of a supply ventilation system if manufacturer requirements for return air temperature are met.
- B. Heating and cooling loads shall be calculated, equipment shall be selected, and duct systems shall be sized according to the latest editions of ACCA Manuals J, S, & D, respectively, 2009 ASHRAE Handbook of Fundamentals, or other methodology approved by the Authority Having Jurisdiction. The HVAC system design shall be completed for the specific configuration (e.g., plan, elevation, option, and orientation) of the home to be built except as permitted herein.
 - For each house plan with multiple configurations (e.g., orientations, elevations, options), the loads shall be calculated for each potential configuration. If the loads across all configurations vary by $\leq 25\%$, then the largest load shall be permitted to be used for equipment selection for all configurations, subject to the over-sizing limits of ACCA Manual S. Otherwise, the contractor shall group the load for each configuration into a set with $\leq 25\%$ variation and equipment selection shall be completed for each set of loads.
 - For each house plan with multiple configurations, the room-level design airflows shall be calculated for each potential configuration. If the design airflows for each room vary across all **configurations** by $\leq 25\%$ or 25 CFM, then the average room-level design airflow shall be permitted to be used when designing the duct system. Otherwise, the contractor shall group the room-level design airflow for each configuration into a set with $\leq 25\%$ or 25 CFM variation and the duct design shall be completed for the average airflow of that set.
- 9. If the design conditions are dictated by a code or regulation, then the requirements of the lawful or controlling authority supersedes the Manual J or ASHRAE default design values. Otherwise, the default values shall be used. The values for the geographically closest location shall be selected or a justification provided for the selected location.
- 10. The number of occupants among all HVAC systems in the home must be equal to the number of bedrooms, as defined below, plus one. Occupants listed for systems that are indicated in the header as a cooling system for temporary occupant loads, as described in Footnote 3, shall be permitted to exceed this limit.

A bedroom is defined by RESNET as a room or space 70 sq. ft. or greater size, with egress window and closet, used or intended to be used for sleeping. A "den", "library", or "home office" with a closet, egress window, and 70 sq. ft. or greater size or other similar rooms shall count as a bedroom, but living rooms and foyers shall not.

- have a sill height of not more than 44 inches above the floor; AND
- have a minimum net clear opening of 5.7 sq. ft.; AND
- have a minimum net clear opening height of 24 in.; AND
- have a minimum net clear opening width of 20 in.; AND
- be operational from the inside of the room without the use of keys, tools or special knowledge.
- 11. "Predominant" is defined as the SHGC value used in the greatest amount of window area in the home.
- 12. Infiltration rate shall reflect value used in confirmed or projected HERS rating for rated home. Alternatively, use "Average" or "Semi-loose" values for the cooling season infiltration rates and "Semi-tight" or "Average" values for the heating season infiltration rates, as defined by ACCA Manual J, Eighth Edition, Version Two.



- 13. Design airflow is the design value(s) for the blower in CFM, as determined by using the manufacturer's expanded performance data to select equipment, per ACCA Manual S procedures.
- 14. Design duct static pressure shall account for the installation of a MERV 6 or higher filter.
- 15. The load calculation for the home shall be provided, documenting all design elements and all **resulting** loads, including but not limited to the values listed in Items 2.1 through 2.17.
- 16. All evaporators and condensing units shall be properly matched as demonstrated by an attached AHRI certificate. If an AHRI certificate is not available, a copy of OEM-provided catalog data indicating acceptable combination selection and performance data shall be attached.
- 17. If the whole-house ventilation system utilizes the HVAC air handler, then the fan speed type shall be ECM / ICM and variable speed, or include a controller (e.g., smart cycler) that reduces the ventilation run time by accounting for hours when HVAC system is heating or cooling the home.
- 18. Listed system capacity at design conditions is to be obtained from the OEM expanded performance data.
- 19. For cooling systems, the next largest nominal piece of equipment may be used that is **available** to satisfy the latent and sensible **requirements**. **Single-speed** systems generally have OEM nominal size increments of ½ ton. Multi-speed or multi-stage equipment may have OEM nominal size increments of one ton. Therefore, the use of these advanced system types can provide extra flexibility to meet the equipment sizing **requirements**.
- 20. Items 4.2 and 4.3 are not applicable to ground-source heat pumps.
- 21. For warm air heating systems, the output capacity must be between 100% and 140% of calculated system load unless a larger size is dictated by the cooling equipment selection.
- 22. Either factory-installed or field-installed TXV's may be used. For field-installed TXV's, ensure that sensing bulbs are insulated and tightly clamped to the vapor line with good linear thermal contact at the recommended orientation, usually 4 or 8 o'clock.
- 23. Examples of return or supply duct static pressure measurement locations are: plenum, cabinet, trunk duct, as well as front, back, left or right side. Test hole locations shall be well marked and accessible.
- 24. Ducts shall not include coiled or looped ductwork except to the extent needed for acoustical control. Balancing dampers or proper duct sizing shall be used instead of loops to limit flow to diffusers. When balancing dampers are used, they shall be located at the trunk to limit noise unless the trunk will not be accessible when the balancing process is conducted. In such cases, Opposable Blade Dampers (OBD) or dampers located in the duct boot are permitted.
- 25. Condensate pan shall be made of **corrosion-resistant** materials, to include galvanized steel and plastic. Drain pan shall drain condensate to a **conspicuous** point of disposal to alert occupants in the event of a stoppage of the primary drainage system; and shall be equipped with a backflow prevention valve when drained to a shared drainage system, such as a storm water management system.



Home Address: Unit 1E 1715 W. IDAH	OST City: Boise	State:	ID Zij	Code: 85	3702
System Description ² FC-102A and FC-102B	Cooling system for tem	porary occupant load?	³ Yes □ No		
1. Whole-Building Mechanical Ventilation Desi	gn ⁴		Builder Verified ⁵	Cont. Verified ⁶	N/A
1.1 Ventilation system installed that has been design but not limited to, requirements in Items 1.2-1.5.	ned to meet ASHRAE 62.2-2010 requ	uirements including,	V	₽/	-
1.2 Ventilation system does not utilize an intake duct is designed to operate intermittently and automa when not in use (e.g., motorized damper).			©	ष	-
Documentation is attached with ventilation system of each ventilation cycle.	n type, location, design rate, and frequ	uency and duration	Ø	Ř	
1.4 If present, continuously-operating vent. & exhaus	t fans designed to operate during all o	ccupiable hours.			Ø
1.5 If present, intermittently-operating whole-house v least once per day and at least 10% of every 24 l		ically operate at			2
2. Heating & Cooling System Design 4.8 - Parametemperatures, home orientation, number of bedrooms, confiltration rate, mechanical ventilation rate, presence of	onditioned floor area, window area, pred	lominant window perfor	mance and in	sulation levels	5,
2.1 Heat Loss / Gain Method: ☐ Manual J v8	☑ 2009 ASHRAE ☐ Other:		7		-
2.2 Duct Design Method:	☐ Manual D ☐ Other: Engineer				
2.3 Equipment Selection Method: Manual S	☐ OEM Rec. ☐ Other: Engineer				
2.4 Outdoor Design Temperatures: 9 Location: Boise	1%: 95 °F 99%: 10.!	°F	- P		-
2.5 Orientation of Rated Home (e.g., North, South):	North				-
2.6 Number of Occupants Served by System: 10	2	-			-
2.7 Conditioned Floor Area in Rated Home:	607	Sa Et			-
2.8 Window Area in Rated Home:	93				-
	0.46	. Sq. Ft.	<u> </u>		_
40		•			-
	Summer: average Winter: average	0514			_
2.11 Mechanical Ventilation Rate in Rated Home:	40	CFM	<u> </u>		1
2.12 Design Latent Heat Gain:	561	BTUh	Ø.		-
2.13 Design Sensible Heat Gain:	10,562	BTUh	V		-
2.14 Design Total Heat Gain:	11,123	BTUh	Ø		-
2.15 Design Total Heat Loss:	10,736	BTUh	V		-
2.16 Design Airflow: 13	Equipment supply	CFM	7		-
2.17 Design Duct Static Pressure: 14		In. Water Column			2
2.18 Full Load Calculations Report Attached 15			V		-
3. Selected Cooling Equipment, If Cooling Equi	ipment to be Installed		W		-
3.1 Condenser Manufacturer & Model:	Samsung model JXH24		Ø		
3.2 Evaporator / Fan Coil Manufacturer & Model:	Samsung model JNH12		7		
3.3 AHRI Reference #: 16	205291854		Ø		
3.4 Listed Efficiency:	11.4 EER 18 SEER	₹ [
3.5 Metering Device Type: ☐ TXV ☐ F	ixed orifice ☑ Other:		Ø		
9 71	-410a		9		
	ariable (ECM / ICM) Other:				
3.8 Listed Sys. Latent Capacity at Design Cond.: 18		BTUh			
3.9 Listed Sys. Sensible Capacity at Design Cond.: 18		BTUh			0
3.10 Listed Sys. Total Capacity at Design Cond.: 18	22,000	BTUh			
3.11 If Listed Sys. Latent Capacity (Value 3.8) ≤ Desi certified dehumidifier installed					
3.12 Listed Sys. Total Capacity (Value 3.10) is 95-11 nominal size 8, 19	5% of Design Total Heat Gain (Value	2.14) or next	e		
3.13 AHRI Certificate Attached ¹⁶					v
4. Selected Heat Pump Equipment, If Heatpump					
	or Ground-Source: COP				
4.2 Performance at 17°F: Capacity 25000 BTUh		ļ.			
4.3 Performance at 47°F: Capacity 25000 BTUh	Efficiency: COP **				



5. Selected Furnace, If Furnace to be Installed Verified 5		Cont. Verified ⁶	N/A	
5.1 Furnace Manufacturer & Model:				7
5.2 Listed Efficiency:	AFUE			9
5.3 Listed Output Heating Capacity:	BTUh			
5.4 Listed Output Heat. Cap. (Value 5.3) is 100-140% of Des nominal size 8.21	ign Total Heat Loss (Value 2.15) or next			v
6. Refrigerant Tests - Run system for 15 minutes before testi	ng			-
Note: If outdoor ambient temperature at the condenser is ≤ 55°F the cooling cycle, then the system shall include a TXV, and the co	or, if known, below the manufacturer-recommended min.	imum operatii & 7. ²²	ng temperatu	ire for
6.1 Outdoor ambient temperature at condenser:	°F DB			2
6.2 Return-side air temperature inside duct near evaporator,	during cooling mode: °F WB			
6.3 Liquid line pressure:	psig			U
6.4 Liquid line temperature:	°F DB			
6.5 Suction line pressure:	psig			0
6.6 Suction line temperature:	ps.g			
7. Refrigerant Calculations	1 00			
For System with Thermal Expansion Valve (TXV):				-
	DB (Using Value 6.3)			Ø
	DB (Value 7.1 - Value 6.4)			
7.3 OEM subcooling goat: °F [-		
	DB (Value 7.2 – Value 7.3)	-		
For System with Fixed Orifice:	(Value 1.2 Value 1.5)			
	DB (Using Value 6.5)	1		
	DB (Value 6.6 – Value 7.5)	1		
	DB (Using superheat tables and Values 6.1 & 6.2)	-		0
	OB (Value 7.6 – Value 7.7)	ŀ		
7.9 Value 7.4 is ± 3°F or Value 7.8 is ± 5°F	(Value 7.0 Value 7.7)			
7.10 An OEM test procedure (e.g., as defined for a ground-so super-heat process and documentation has been attached		ing or		Ø
8. Electrical Measurements – Taken at electrical disconn				
8.1 Evaporator or furnace air handler fan: amperag		7		V
8.2 Condenser unit: amperag				
8.3 Electrical measurements within OEM-specified tolerance of				
9. Air Flow Tests	nameplate value	1		
9.1 Air volume at evaporator: CFM				
	Cooling	}		
9.3 Return duct static pressure:	IWC Test Hole Location: 23			
9.4 Supply duct static pressure:	IWC Test Hole Location: 23			
9.5 Test hole locations are well-marked and accessible ²³	Test Hole Location.			
9.6 Airflow volume at evaporator (Value 9.1), at fan design spe		ired per		
system design (Value 2.16) or within range recommende 10, Air Balance	а ву ОЕМ			
10.1 Balancing report prepared and attached indicating the ro- individual room airflows measured and documented through		rn register. I	n addition, f	inal
10.1.1 Measured by contractor using ANSI / ACCA 5 QI-2 report, & verified by contractor to be within the gre	2007 protocol, documented by contractor on the balan	ncing		2
10.1.2 To be measured, documented, and verified by a R		ecklist		2
11. System Controls				
11.1 Operating and safety controls meet OEM requirements				V
12. Drain pan				
12.1 Corrosion-resistant drain pan, properly sloped to drainage condensate ²⁵	e system, included with each HVAC component that	produces		Ø
HVAC Company Name: Advanced Heating And Cooling	Credentialing Organizati	on: ACCA / /	AE / Other	
	C Contractor Signature:		5/8/23	
Builder Name: 5 Visser Build ung Build	ler Signature: 5	Date:	5/242	5



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One Checklist shall be completed for each system and provided to the Rater.

- 2. Description of HVAC system location or area served (e.g., "whole house", "upper level", "lower level").
- 3. Check "Yes" if this system is to handle temporary occupant loads. Such a system may be required to accommodate a significant number of guests on a regular or sporadic basis and shall be handled by a supplemental cooling system (e.g., a small, single-package unit or split-coil unit) or by a system that can shift capacity from zone to zone (e.g., a variable volume system).
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 designed and installed per local codes, manufacturers' installation instructions, engineering documents, and regional ENERGY STAR
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 - For each house plan with multiple configurations (e.g., orientations, elevations, options), the loads shall be calculated for each potential configuration. If the loads across all configurations vary by $\leq 25\%$, then the largest load shall be permitted to be used for equipment selection for all configurations, subject to the over-sizing limits of ACCA Manual S. Otherwise, the contractor shall group the load for each configuration into a set with $\leq 25\%$ variation and equipment selection shall be completed for each set of loads.
 - For each house plan with multiple **configurations**, the room-level design airflows shall be **calculated** for each potential configuration. If the design airflows for each room vary across all configurations by $\leq 25\%$ or 25 CFM, then the average room-level design airflow shall be permitted to be used when **designing** the duct system. Otherwise, the contractor shall group the room-level design airflow for each configuration into a set with $\leq 25\%$ or 25 CFM variation and the duct design shall be completed for the average airflow of that set.
- 9. If the design conditions are dictated by a code or regulation, then the requirements of the lawful or controlling authority supersedes the Manual J or ASHRAE default design values. Otherwise, the default values shall be used. The values for the geographically closest location shall be selected or a justification provided for the selected location.
- 10. The number of occupants among all HVAC systems in the home must be equal to the number of bedrooms, as defined below, plus one. Occupants listed for systems that are indicated in the header as a cooling system for temporary occupant loads, as described in Footnote 3, shall be permitted to exceed this limit.

A bedroom is defined by RESNET as a room or space 70 sq. ft. or greater size, with egress window and closet, used or intended to be used for sleeping. A "den", "library", or "home office" with a closet, egress window, and 70 sq. ft. or greater size or other similar rooms shall count as a bedroom, but living rooms and foyers shall not.

- have a sill height of not more than 44 inches above the floor; AND
- have a minimum net clear opening of 5.7 sq. ft.; AND
- · have a minimum net clear opening height of 24 in.; AND
- · have a minimum net clear opening width of 20 in.; AND
- be operational from the inside of the room without the use of keys, tools or special knowledge.
- 11. "Predominant" is defined as the SHGC value used in the greatest amount of window area in the home.
- 12. Infiltration rate shall reflect value used in confirmed or projected HERS rating for rated home. Alternatively, use "Average" or "Semi-loose" values for the cooling season infiltration rates and "Semi-tight" or "Average" values for the heating season infiltration rates, as defined by ACCA Manual J, Eighth Edition, Version Two.



- 13. Design airflow is the design value(s) for the blower in CFM, as determined by using the manufacturer's expanded performance data to select equipment, per ACCA Manual S procedures.
- 14. Design duct static pressure shall account for the installation of a MERV 6 or higher filter.
- 15. The load calculation for the home shall be provided, documenting all design elements and all resulting loads, including but not limited to the values listed in Items 2.1 through 2.17.
- 16. All evaporators and condensing units shall be properly matched as demonstrated by an attached AHRI certificate. If an AHRI certificate is not available, a copy of OEM-provided catalog data indicating acceptable combination selection and performance data shall be attached.
- 17. If the whole-house ventilation system utilizes the HVAC air handler, then the fan speed type shall be ECM / ICM and variable speed, or include a controller (e.g., smart cycler) that reduces the ventilation run time by accounting for hours when HVAC system is heating or cooling the home.
- 18. Listed system capacity at design conditions is to be obtained from the OEM expanded performance data.
- 19. For cooling systems, the next largest nominal piece of equipment may be used that is available to satisfy the latent and sensible requirements. Single-speed systems generally have OEM nominal size increments of ½ ton. Multi-speed or multi-stage equipment may have OEM nominal size increments of one ton. Therefore, the use of these advanced system types can provide extra flexibility to meet the equipment sizing requirements.
- 20. Items 4.2 and 4.3 are not applicable to ground-source heat pumps.
- 21. For warm air heating systems, the output capacity must be between 100% and 140% of calculated system load unless a larger size is dictated by the cooling equipment selection.
- 22. Either factory-installed or field-installed TXV's may be used. For field-installed TXV's, ensure that sensing bulbs are insulated and tightly clamped to the vapor line with good linear thermal contact at the recommended orientation, usually 4 or 8 o'clock.
- 23. Examples of return or supply duct static pressure measurement locations are: plenum, cabinet, trunk duct, as well as front, back, left or right side. Test hole locations shall be well marked and accessible.
- 24. Ducts shall not include coiled or looped ductwork except to the extent needed for acoustical control. Balancing dampers or proper duct sizing shall be used instead of loops to limit flow to diffusers. When balancing dampers are used, they shall be located at the trunk to limit noise unless the trunk will not be accessible when the balancing process is conducted. In such cases, Opposable Blade Dampers (OBD) or dampers located in the duct boot are permitted.
- 25. Condensate pan shall be made of corrosion-resistant materials, to include galvanized steel and plastic. Drain pan shall drain condensate to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drainage system; and shall be equipped with a backflow prevention valve when drained to a shared drainage system, such as a storm water management system.



Home Address: Unit 1D 1715 W. IDAHO ST City: Boise Sta	ate: ID Zi	o Code: 83	3702
System Description ² FC-102A and FC-102B Cooling system for temporary occupant to			
1. Whole-Building Mechanical Ventilation Design ⁴	Builder Verified ⁵	Cont. Verified ⁶	N/A
1.1 Ventilation system installed that has been designed to meet ASHRAE 62.2-2010 requirements including but not limited to, requirements in Items 1.2-1.5. 7	g, 🗹	0/	-
1.2 Ventilation system does not utilize an intake duct to the return side of the HVAC system unless the syste is designed to operate intermittently and automatically based on a timer and to restrict outdoor air intal when not in use (e.g., motorized damper).	m ke	G/	-
 Documentation is attached with ventilation system type, location, design rate, and frequency and duration of each ventilation cycle. 		d	-
1.4 If present, continuously-operating vent. & exhaust fans designed to operate during all occupiable hours.			Ø
1.5 If present, intermittently-operating whole-house ventilation system designed to automatically operate at least once per day and at least 10% of every 24 hours.			Ø
2. Heating & Cooling System Design 4,8 - Parameters used in the design calculations shall reflect home to be	e built, specificall	y, outdoor des	ign
temperatures, home orientation, number of bedrooms, conditioned floor area, window area, predominant window per infiltration rate, mechanical ventilation rate, presence of MERV6 or better filter, and indoor temperature setpoints =	erformance and ir 70°F for heating;	n sulation level 75°F for coolii	s, ng.
2.1 Heat Loss / Gain Method: ☐ Manual J v8 ☐ 2009 ASHRAE ☐ Other:			-
2.2 Duct Design Method: ☐ Manual D ☐ Other: Engineer			
2.3 Equipment Selection Method: ☐ Manual S ☐ OEM Rec. ☐ Other: Engineer	e		1
2.4 Outdoor Design Temperatures: 9 Location: Boise 1%: 95 °F 99%: 10.! °F	\square		-
2.5 Orientation of Rated Home (e.g., North, South): North			-
2.6 Number of Occupants Served by System: 10 2	2		٠,
2.7 Conditioned Floor Area in Rated Home: 681 Sq. Ft.	P		-
2.8 Window Area in Rated Home: 51 Sq. Ft.			-
2.9 Predominant Window SHGC in Rated Home: 11 0.46			-
2.10 Infiltration Rate in Rated Home: ¹² Summer: average Winter: average			
2.11 Mechanical Ventilation Rate in Rated Home: 40 CFM			-
2.12 Design Latent Heat Gain: 561 BTUh			
2.13 Design Sensible Heat Gain: 7,855 BTUh			
2.14 Design Total Heat Gain: 8,416 BTUh			
			-
2.16 Design Airflow: ¹³ Equipment supply CFM			-
2.17 Design Duct Static Pressure: 14 In. Water Column			Ø
2.18 Full Load Calculations Report Attached ¹⁵			
3. Selected Cooling Equipment, If Cooling Equipment to be Installed			
3.1 Condenser Manufacturer & Model: Samsung model JXH24			
3.2 Evaporator / Fan Coil Manufacturer & Model: Samsung model JNH12 3.3 AHRI Reference #: 16 205291854			
3.4 Listed Efficiency: 11.4 EER 18 SEER			
3.5 Metering Device Type: ☐ TXV ☐ Fixed orifice ☐ Other:			
3.6 Refrigerant Type: □ R-410a □ Other:			
3.7 Fan Speed Type: ¹⁷ ☐ Fixed ☑ Variable (ECM / ICM) ☐ Other:			
3.8 Listed Sys. Latent Capacity at Design Cond.: 18 BTUh			7
3.9 Listed Sys. Sensible Capacity at Design Cond.: 18 BTUh			9
3.10 Listed Sys. Total Capacity at Design Cond.: ¹⁸ 22,000 BTUh	0		
3.11 If Listed Sys. Latent Capacity (Value 3.8) ≤ Design Latent Heat Gain (Value 2.12), ENERGY STAR certified dehumidifier installed			Ø
3.12 Listed Sys. Total Capacity (Value 3.10) is 95-115% of Design Total Heat Gain (Value 2.14) or next nominal size ^{8, 19}	2		
3.13 AHRI Certificate Attached ¹⁶			V
4. Selected Heat Pump Equipment, If Heatpump to be Installed			
4.1 AHRI Listed Efficiency: 9.5 HSPF or Ground-Source: COP	9		
4.2 Performance at 17°F: Capacity 25000 BTUh Efficiency: COP 20	0		
4.3 Performance at 47°F; Capacity 25000 BTUh Efficiency; COP 20			



5. Selected Furnace, If Furnace to be Installed		Builder Verified ⁵	Cont. Verified ⁶	N/A
5.1 Furnace Manufacturer & Model:				2
5.2 Listed Efficiency: AFUE				
5.3 Listed Output Heating Capacity:BTUh				Ø
5.4 Listed Output Heat. Cap. (Value 5.3) is 100-140% of Design Total Heat Loss (Valu nominal size ^{8,21}	e 2.15) or next			0
6. Refrigerant Tests - Run system for 15 minutes before testing Note: If outdoor ambient temperature at the condenser is ≤ 55°F or, if known, below the man	nufacturer-recommended min	imum operati	ng temperatu	ure for
the cooling cycle, then the system shall include a TXV, and the contractor shall mark "N/A" of	on the Checklist for Section 6 °F DB	& 7. ···		123
6.1 Outdoor ambient temperature at condenser:				
6.2 Return-side air temperature inside duct near evaporator, during cooling mode:	°F WB			
	psig			
6.4 Liquid line temperature:	°F DB			
6.5 Suction line pressure:	psig			
6.6 Suction line temperature:	°F DB			Ø
7. Refrigerant Calculations				
For System with Thermal Expansion Valve (TXV):				
7.1 Condenser saturation temperature: °F DB (Using Value 6.3)				0
7.2 Subcooling value: °F DB (Value 7.1 - Value 6.4	1)			
7.3 OEM subcooling goal: °F DB				0
7.4 Subcooling deviation:	8)			0
For System with Fixed Orifice:				-
7.5 Evaporator saturation temperature:				
7.6 Superheat value: °F DB (Value 6.6 – Value 7.5				
7.7 OEM superheat goal: "F DB (Using superheat tables and Values 6.1 & 6.2) "F DB (Value 7.5) Value 7.7)				
7.8 Superheat deviation: °F DB (Value 7.6 – Value 7.7.9 Value 7.4 is ± 3°F or Value 7.8 is ± 5°F	()			0
7.10 An OEM test procedure (e.g., as defined for a ground-source heat pump) has been super-heat process and documentation has been attached that defines this process.		ing or		<u> </u>
8. Electrical Measurements – Taken at electrical disconnect while component is				
8.1 Evaporator or furnace air handler fan: amperage line v			0 1	2
	ronage			<u> </u>
8.3 Electrical measurements within OEM-specified tolerance of nameplate value 9. Air Flow Tests			U	
9.1 Air volume at evaporator: CFM				V
9.2 Test performed in which mode? Heating Cooling		-		
	Location: 23	1		
	Location: 23			
9.5 Test hole locations are well-marked and accessible ²³	Looditori.	-		
9.6 Airflow volume at evaporator (Value 9.1), at fan design speed and full operating loa system design (Value 2.16) or within range recommended by OEM	id, ± 15% of the airflow requ	ired per		<u> </u>
10. Air Balance				
10.1 Balancing report prepared and attached indicating the room name and design airflindividual room airflows measured and documented through one of the following o		ırn register. I	n addition, f	inal
10.1.1 Measured by contractor using ANSI / ACCA 5 QI-2007 protocol, documented report, & verified by contractor to be within the greater of ± 20% or 25 CFM		ncing		e
10.1.2 To be measured, documented, and verified by a Rater per Item 1.4.2 of the	HVAC System QI Rater Ch	ecklist		Ø
11. System Controls				
11.1 Operating and safety controls meet OEM requirements				Ø
 12. Drain pan 12.1 Corrosion-resistant drain pan, properly sloped to drainage system, included with e condensate ²⁵ 	ach HVAC component that	produces		
HVAC Company Name:Advanced Heating And Cooling	Credentialing Organizati	on: ACCA /	AF / Other	
HVAC Contractor Name: Caleb Knutson HVAC Contractor Signature:	_ Groundaing Organizati		5/8/23	
Builder Name: 5 Visso Builder Signature: 5	is folding		5/24	23



1. This Checklist is designed to align with the requirements of ASHRAE 62.2-2010 and published addenda and ANSI / ACCA's 5 QI-2007 protocol, thereby improving the performance of HVAC equipment in new homes when compared to homes built to minimum code. However, these features alone cannot prevent all ventilation, indoor air quality, and HVAC problems (e.g., those caused by a lack of maintenance by occupants). Therefore, this Checklist is not a guarantee of proper ventilation, indoor air quality, or HVAC performance.

This Checklist applies to ventilation systems; to split air conditioners, unitary air conditioners, air-source heat pumps, and water-source (i.e., geothermal) heat pumps up to 65,000 Btu / h with forced-air distribution systems (i.e., ducts) and to furnaces up to 225,000 Btu / h with forced-air distribution systems (i.e., ducts). All other permutations of equipment (e.g., boilers, mini-split / multi-split systems) and distribution systems are exempt. If the ventilation system is the only applicable system installed in the home, then only Section 1 shall be completed.

One Checklist shall be completed for each system and provided to the Rater.

- 2. Description of HVAC system location or area served (e.g., "whole house", "upper level", "lower level").
- 3. Check "Yes" if this system is to handle temporary occupant loads. Such a system may be required to accommodate a significant number of guests on a regular or sporadic basis and shall be handled by a supplemental cooling system (e.g., a small, single-package unit or split-coil unit) or by a system that can shift capacity from zone to zone (e.g., a variable volume system).
- 4. The person responsible for the heating, cooling, & ventilation design shall be responsible for completing Sections 1 and 2 of this Checklist.
- 5. For Sections 1 through 5, the 'Builder Verified' column shall be used to indicate items verified by the builder (or a firm or HERS Rater hired by the builder). If any Items have been marked 'Builder Verified', then the builder is responsible for these Items and must sign this Checklist. Note that builders are not permitted to verify any Items in Sections 6-12.
- 6. For Sections 1 through 5, the 'Cont. Verified' column shall be used to indicate Items verified by the credentialed contractor (or a firm or HERS Rater hired by the contractor). In contrast, for Sections 6 through 12, the 'Cont. Verified' column shall <u>only</u> be used to indicate Items verified by the credentialed contractor (i.e., neither a builder, nor a firm, nor a HERS Rater are permitted to verify Sections 6 12). The credentialed contractor is responsible for these Items and shall sign this Checklist.
- For proper procedures, exceptions, and selection methods see ASHRAE 62.2-2010 and published addenda. All components shall be
 designed and installed per local codes, manufacturers' installation instructions, engineering documents, and regional ENERGY STAR
 program requirements.
 - The system shall have at least one supply or exhaust fan with associated ducts and controls. Local exhaust fans are allowed to be part of an exhaust ventilation system. Outdoor air ducts connected to the return side of an air handler are allowed to be part of a supply ventilation system if manufacturer requirements for return air temperature are met.
- 8. Heating and cooling loads shall be calculated, equipment shall be selected, and duct systems shall be sized according to the latest editions of ACCA Manuals J, S, & D, respectively, 2009 ASHRAE Handbook of Fundamentals, or other methodology approved by the Authority Having Jurisdiction. The HVAC system design shall be completed for the specific configuration (e.g., plan, elevation, option, and orientation) of the home to be built except as permitted herein.
 - For each house plan with multiple configurations (e.g., **orientations**, elevations, options), the loads shall be calculated for each potential configuration. If the loads across all configurations vary by $\leq 25\%$, then the largest load shall be permitted to be used for **equipment** selection for all configurations, subject to the over-sizing limits of ACCA Manual S. Otherwise, the **contractor** shall group the load for each configuration into a set with $\leq 25\%$ variation and equipment selection shall be completed for each set of loads.
 - For each house plan with multiple configurations, the room-level design airflows shall be **calculated** for each **potential** configuration. If the design airflows for each room vary across all configurations by $\leq 25\%$ or 25 CFM, then the average room-level design airflow shall be permitted to be used when designing the duct system. Otherwise, the contractor shall group the room-level design airflow for each configuration into a set with $\leq 25\%$ or 25 CFM variation and the duct design shall be completed for the average airflow of that set.
- 9. If the design conditions are dictated by a code or regulation, then the requirements of the lawful or controlling authority supersedes the Manual J or ASHRAE default design values. Otherwise, the default values shall be used. The values for the geographically closest location shall be selected or a justification provided for the selected location.
- 10. The number of occupants among all HVAC systems in the home must be equal to the number of bedrooms, as defined below, plus one. Occupants listed for systems that are indicated in the header as a cooling system for temporary occupant loads, as described in Footnote 3, shall be permitted to exceed this limit.

A bedroom is defined by RESNET as a room or space 70 sq. ft. or greater size, with egress window and closet, used or intended to be used for sleeping. A "den", "library", or "home office" with a closet, egress window, and 70 sq. ft. or greater size or other similar rooms shall count as a bedroom, but living rooms and foyers shall not.

- have a sill height of not more than 44 inches above the floor; AND
- have a minimum net clear opening of 5.7 sq. ft.; AND
- have a minimum net clear opening height of 24 in.; AND
- · have a minimum net clear opening width of 20 in.; AND
- be operational from the inside of the room without the use of keys, tools or special knowledge.
- 11. "Predominant" is defined as the SHGC value used in the greatest amount of window area in the home.
- 12. Infiltration rate shall reflect value used in confirmed or projected HERS rating for rated home. Alternatively, use "Average" or "Semi-loose" values for the cooling season infiltration rates and "Semi-tight" or "Average" values for the heating season infiltration rates, as defined by ACCA Manual J, Eighth Edition, Version Two.



- 13. Design airflow is the design value(s) for the blower in CFM, as determined by using the manufacturer's expanded performance data to select equipment, per ACCA Manual S procedures.
- 14. Design duct static pressure shall account for the installation of a MERV 6 or higher filter.
- 15. The load calculation for the home shall be provided, documenting all design elements and all resulting loads, including but not limited to the values listed in Items 2.1 through 2.17.
- 16. All evaporators and condensing units shall be properly matched as demonstrated by an attached AHRI certificate. If an AHRI certificate is not available, a copy of OEM-provided catalog data indicating acceptable combination selection and performance data shall be attached.
- 17. If the whole-house ventilation system utilizes the HVAC air handler, then the fan speed type shall be ECM / ICM and variable speed, or include a controller (e.g., smart cycler) that reduces the ventilation run time by accounting for hours when HVAC system is heating or cooling the home.
- 18. Listed system capacity at design conditions is to be obtained from the OEM expanded performance data.
- 19. For cooling systems, the next largest nominal piece of equipment may be used that is available to satisfy the latent and sensible requirements. Single-speed systems generally have OEM nominal size increments of ½ ton. Multi-speed or multi-stage equipment may have OEM nominal size increments of one ton. Therefore, the use of these advanced system types can provide extra flexibility to meet the equipment sizing requirements.
- 20. Items 4.2 and 4.3 are not applicable to ground-source heat pumps.
- 21. For warm air heating systems, the output capacity must be between 100% and 140% of calculated system load unless a larger size is dictated by the cooling equipment selection.
- 22. Either factory-installed or field-installed TXV's may be used. For field-installed TXV's, ensure that sensing bulbs are insulated and tightly clamped to the vapor line with good linear thermal contact at the recommended orientation, usually 4 or 8 o'clock.
- 23. Examples of return or supply duct static pressure measurement locations are: plenum, cabinet, trunk duct, as well as front, back, left or right side. Test hole locations shall be well marked and accessible.
- 24. Ducts shall not include coiled or looped ductwork except to the extent needed for acoustical control. Balancing dampers or proper duct sizing shall be used instead of loops to limit flow to diffusers. When balancing dampers are used, they shall be located at the trunk to limit noise unless the trunk will not be accessible when the balancing process is conducted. In such cases, Opposable Blade Dampers (OBD) or dampers located in the duct boot are permitted.
- 25. Condensate pan shall be made of corrosion-resistant materials, to include galvanized steel and plastic. Drain pan shall drain condensate to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drainage system; and shall be equipped with a backflow prevention valve when drained to a shared drainage system, such as a storm water management system.



Home Address: Unit 1C 1715 W. IDAHC	OST City: Boise	State:	ID Zip	Code: 83	702
System Description ² FC-102A and FC-102B	Cooling system for tem	porary occupant load	? ³ Yes □ No	2	
1. Whole-Building Mechanical Ventilation Des	ign ⁴		Builder Verified ⁵	Cont. Verified ⁶	N/A
1.1 Ventilation system installed that has been designed but not limited to, requirements in Items 1.2-1.5.		uirements including,	0	d	-
1.2 Ventilation system does not utilize an intake duc is designed to operate intermittently and autom when not in use (e.g., motorized damper).			e	ď	-
Documentation is attached with ventilation system of each ventilation cycle.	m type, location, design rate, and frequ	uency and duration		d	v
1.4 If present, continuously-operating vent. & exhau-	st fans designed to operate during all o	occupiable hours.			Ø
1.5 If present, intermittently-operating whole-house least once per day and at least 10% of every 24	hours.				e
2. Heating & Cooling System Design 4,8 - Param temperatures, home orientation, number of bedrooms, infiltration rate, mechanical ventilation rate, presence or	conditioned floor area, window area, pred	lominant window perfor	rmance and ir	sulation levels	S,
	☑ 2009 ASHRAE ☐ Other:	erature setpoints = 70 i	or neaung, ☑	73 F 101 COOM	ıy.
2.2 Duct Design Method:	☐ Manual D ☑ Other: Engineer				_
2.3 Equipment Selection Method: ☐ Manual S	☐ OEM Rec. ☐ Other: Engineer				-
2.4 Outdoor Design Temperatures: ⁹ Location: Bois		°E			
		Г			
2.5 Orientation of Rated Home (e.g., North, South):	2	1			-
2.6 Number of Occupants Served by System: 10	***************************************	0 51			-
2.7 Conditioned Floor Area in Rated Home:	697	Sq. Ft.			
2.8 Window Area in Rated Home:	123	ુSq. Ft.			
2.9 Predominant Window SHGC in Rated Home: 11	0.46	-	V		
2.10 Infiltration Rate in Rated Home: 12	Summer: average Winter: average		v		
2.11 Mechanical Ventilation Rate in Rated Home:	45	CFM			-
2.12 Design Latent Heat Gain:	561	BTUh	Ø		-
2.13 Design Sensible Heat Gain:	11,560	BTUh			-
2.14 Design Total Heat Gain:	12,121	BTUh	Ø		-
2.15 Design Total Heat Loss:	11,236	BTUh			-
2.16 Design Airflow: ¹³	Equipment supply	CFM			-
2.17 Design Duct Static Pressure: 14		In. Water Column			
2.18 Full Load Calculations Report Attached 15			V		
3. Selected Cooling Equipment, If Cooling Equ	ipment to be Installed				
3.1 Condenser Manufacturer & Model:	Samsung model JXH24				
3.2 Evaporator / Fan Coil Manufacturer & Model:	Samsung model JNH12		2		
3.3 AHRI Reference #: ¹⁶	205291854		•		
3.4 Listed Efficiency:	11.4 EER 18 SEE	₹	9		
The Park	ixed orifice				
1,000 (1,0)(1,000 (1,0)(1,000 (1,0)(1,0)(1,0)(1,0)(1,0)(1,0)(1,0)(1,0)	R-410a				
	/ariable (ECM / ICM) Other:	DTUE			
 3.8 Listed Sys. Latent Capacity at Design Cond.: 18 3.9 Listed Sys. Sensible Capacity at Design Cond.: 1 	8	BTUh BTUh			9
3.10 Listed Sys. Total Capacity at Design Cond.: 18	22,000	BTUh			
3.11 If Listed Sys. Latent Capacity (Value 3.8) ≤ Des certified dehumidifier installed				0	9
3.12 Listed Sys. Total Capacity (Value 3.10) is 95-1 nominal size ^{8, 19}	15% of Design Total Heat Gain (Value	2.14) or next	Ø		
3.13 AHRI Certificate Attached ¹⁶		-			
4. Selected Heat Pump Equipment, If Heatpum	p to be Installed				
	or Ground-Source:COP				
4.2 Performance at 17°F; Capacity 25000 BTUh	Efficiency: COP 20		0		
4.3 Performance at 47°F: Capacity 25000 BTUI	Efficiency: COP 20	Ì			



5. Selected Furnace, If Furnace to be Installed Verified 5		Verified 6	N/A	
5.1 Furnace Manufacturer & Model:				0
5.2 Listed Efficiency: AFUE				0
5.3 Listed Output Heating Capacity:BTUh				Ø
5.4 Listed Output Heat. Cap. (Value 5.3) is 100-140% of Design Total Heat Loss (Value 2.1 nominal size 8.21	5) or next			
6. Refrigerant Tests - Run system for 15 minutes before testing				
Note: If outdoor ambient temperature at the condenser is ≤ 55°F or, if known, below the manufacthe cooling cycle, then the system shall include a TXV, and the contractor shall mark "N/A" on the	turer-recommended min Checklist for Section 6	imurn operati & 7. ²²	ng temperatu	ure for
6.1 Outdoor ambient temperature at condenser:	°F DB			
6.2 Return-side air temperature inside duct near evaporator, during cooling mode:	°F WB			
6.3 Liquid line pressure:	psig			Ø
	°F DB			9
	_ psig			Ø
	°F DB	1		U
7. Refrigerant Calculations				
For System with Thermal Expansion Valve (TXV):				
7.1 Condenser saturation temperature:				0
7.2 Subcooling value: °F DB (Value 7.1 - Value 6.4)				
7.3 OEM subcooling goal : °F DB				9
7.4 Subcooling deviation: °F DB (Value 7.2 – Value 7.3)				Ø
For System with Fixed Orifice:				
7.5 Evaporator saturation temperature: °F DB (Using Value 6.5)				V
7.6 Superheat value: °F DB (Value 6.6 – Value 7.5)				Ø
7.7 OEM superheat goal: °F DB (Using superheat tables and Values 6.1 & 6.2)				
7.8 Superheat deviation: °F DB (Value 7.6 – Value 7.7)				
7.9 Value 7.4 is ± 3°F or Value 7.8 is ± 5°F				
7.10 An OEM test procedure (e.g., as defined for a ground-source heat pump) has been used in place of sub-cooling or super-heat process and documentation has been attached that defines this procedure				2
8. Electrical Measurements - Taken at electrical disconnect while component is in op-	peration			
8.1 Evaporator or furnace air handler fan: amperageline voltag	е			
8.2 Condenser unit: amperageline voltage	je			
8.3 Electrical measurements within OEM-specified tolerance of nameplate value				
9. Air Flow Tests				
9.1 Air volume at evaporator: CFM				Ø
9.2 Test performed in which mode? ☐ Heating ☐ Cooling				
9.3 Return duct static pressure: IWC Test Hole Local				
9.4 Supply duct static pressure: IWC Test Hole Local	ıtion: ²³			
9.5 Test hole locations are well-marked and accessible ²³		,		V
9.6 Airflow volume at evaporator (Value 9.1), at fan design speed and full operating load, ± system design (Value 2.16) or within range recommended by OEM	15% of the airflow requ	iired per		Ø
10. Air Balance				
10.1 Balancing report prepared and attached indicating the room name and design airflow for individual room airflows measured and documented through one of the following option	is:		n addition, f	inal
10.1.1 Measured by contractor using ANSI / ACCA 5 QI-2007 protocol, documented by report, & verified by contractor to be within the greater of ± 20% or 25 CFM of de	esign airflow ²⁴ , OR;			P
10.1.2 To be measured, documented, and verified by a Rater per Item 1.4.2 of the HVA	C System QI Rater Ch	ecklist		
11. System Controls				
11.1 Operating and safety controls meet OEM requirements				2
12. Drain pan	10.400			
12.1 Corrosion-resistant drain pan, properly sloped to drainage system, included with each l condensate ²⁵				
	redentialing Organizati			
HVAC Contractor Name: Caleb Knutson HVAC Contractor Signature:	161		5/8/23	
Builder Name: 5 VISSE SMILDING Builder Signature: 5 DNIV	1 Fledding	Date:	2/24	13



1. This Checklist is designed to align with the requirements of ASHRAE 62.2-2010 and published addenda and ANSI / ACCA's 5 QI-2007 protocol, thereby improving the performance of HVAC equipment in new homes when compared to homes built to minimum code. However, these features alone cannot prevent all ventilation, indoor air quality, and HVAC problems (e.g., those caused by a lack of maintenance by occupants). Therefore, this Checklist is not a guarantee of proper ventilation, indoor air quality, or HVAC performance.

This Checklist applies to ventilation systems; to split air conditioners, unitary air conditioners, air-source heat pumps, and water-source (i.e., geothermal) heat pumps up to 65,000 Btu / h with forced-air distribution systems (i.e., ducts) and to furnaces up to 225,000 Btu / h with forced-air distribution systems (i.e., ducts). All other permutations of equipment (e.g., boilers, mini-split / multi-split systems) and distribution systems are exempt. If the ventilation system is the only applicable system installed in the home, then only Section 1 shall be completed.

One Checklist shall be completed for each system and provided to the Rater.

- 2. Description of HVAC system location or area served (e.g., "whole house", "upper level", "lower level").
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- 4. The person responsible for the heating, cooling, & ventilation design shall be responsible for completing Sections 1 and 2 of this Checklist.
- 5. For Sections 1 through 5, the 'Builder Verified' column shall be used to indicate items verified by the builder (or a firm or HERS Rater hired by the builder). If any Items have been marked 'Builder Verified', then the builder is responsible for these Items and must sign this Checklist. Note that builders are not permitted to verify any Items in Sections 6-12.
- 6. For Sections 1 through 5, the 'Cont. Verified' column shall be used to indicate Items verified by the credentialed contractor (or a firm or HERS Rater hired by the contractor). In contrast, for Sections 6 through 12, the 'Cont. Verified' column shall <u>only</u> be used to indicate Items verified by the credentialed contractor (i.e., neither a builder, nor a firm, nor a HERS Rater are permitted to verify Sections 6 12). The credentialed contractor is responsible for these Items and shall sign this Checklist.
- For proper procedures, exceptions, and selection methods see ASHRAE 62.2-2010 and published addenda. All components shall be
 designed and installed per local codes, manufacturers' installation instructions, engineering documents, and regional ENERGY STAR
 program requirements.
 - The system shall have at least one supply or exhaust fan with associated ducts and controls. Local exhaust fans are allowed to be part of an exhaust ventilation system. Outdoor air ducts connected to the return side of an air handler are allowed to be part of a supply ventilation system if manufacturer requirements for return air temperature are met.
- 8. Heating and cooling loads shall be calculated, equipment shall be selected, and duct systems shall be sized according to the latest editions of ACCA Manuals J, S, & D, respectively, 2009 ASHRAE Handbook of Fundamentals, or other methodology approved by the Authority Having Jurisdiction. The HVAC system design shall be completed for the specific configuration (e.g., plan, elevation, option, and orientation) of the home to be built except as permitted herein.
 - For each house plan with multiple configurations (e.g., orientations, **elevations**, options), the loads shall be calculated for each potential configuration. If the loads across all configurations vary by $\leq 25\%$, then the largest load shall be permitted to be used for equipment selection for all configurations, subject to the over-sizing limits of ACCA Manual S. Otherwise, the contractor shall group the load for each configuration into a set with $\leq 25\%$ variation and equipment selection shall be completed for each set of loads.
 - For each house plan with multiple configurations, the room-level design airflows shall be calculated for each potential configuration. If the design airflows for each room vary across all configurations by $\leq 25\%$ or 25 CFM, then the average room-level design airflow shall be permitted to be used when designing the duct system. Otherwise, the contractor shall group the room-level design airflow for each configuration into a set with $\leq 25\%$ or 25 CFM variation and the duct design shall be completed for the average airflow of that set.
- 9. If the design conditions are dictated by a code or regulation, then the requirements of the lawful or controlling authority supersedes the Manual J or ASHRAE default design values. Otherwise, the default values shall be used. The values for the geographically closest location shall be selected or a justification provided for the selected location.
- 10. The number of occupants among all HVAC systems in the home must be equal to the number of bedrooms, as defined below, plus one. Occupants listed for systems that are indicated in the header as a cooling system for temporary occupant loads, as described in Footnote 3, shall be permitted to exceed this limit.

A bedroom is defined by RESNET as a room or space 70 sq. ft. or greater size, with egress window and closet, used or intended to be used for sleeping. A "den", "library", or "home office" with a closet, egress window, and 70 sq. ft. or greater size or other similar rooms shall count as a bedroom, but living rooms and foyers shall not.

- · have a sill height of not more than 44 inches above the floor; AND
- have a minimum net clear opening of 5.7 sq. ft.; AND
- · have a minimum net clear opening height of 24 in.; AND
- have a minimum net clear opening width of 20 in.; AND
- · be operational from the inside of the room without the use of keys, tools or special knowledge.
- 11. "Predominant" is defined as the SHGC value used in the greatest amount of window area in the home.
- 12. Infiltration rate shall reflect value used in confirmed or projected HERS rating for rated home. Alternatively, use "Average" or "Semi-loose" values for the cooling season infiltration rates and "Semi-tight" or "Average" values for the heating season infiltration rates, as defined by ACCA Manual J, Eighth Edition, Version Two.



- Design airflow is the design value(s) for the blower in CFM, as determined by using the manufacturer's expanded performance data to select equipment, per ACCA Manual S procedures.
- 14. Design duct static pressure shall account for the installation of a MERV 6 or higher filter.
- 15. The load calculation for the home shall be provided, documenting all design elements and all resulting loads, including but not limited to the values listed in Items 2.1 through 2.17.
- 16. All evaporators and condensing units shall be properly matched as demonstrated by an attached AHRI certificate. If an AHRI certificate is not available, a copy of OEM-provided catalog data indicating acceptable combination selection and performance data shall be attached.
- 17. If the whole-house ventilation system utilizes the HVAC air handler, then the fan speed type shall be ECM / ICM and variable speed, or include a controller (e.g., smart cycler) that reduces the ventilation run time by accounting for hours when HVAC system is heating or cooling the home.
- 18. Listed system capacity at design conditions is to be obtained from the OEM expanded performance data.
- 19. For cooling systems, the next largest nominal piece of equipment may be used that is available to satisfy the latent and sensible requirements. Single-speed systems generally have OEM nominal size increments of ½ ton. Multi-speed or multi-stage equipment may have OEM nominal size increments of one ton. Therefore, the use of these advanced system types can provide extra flexibility to meet the equipment sizing requirements.
- 20. Items 4.2 and 4.3 are not applicable to ground-source heat pumps.
- 21. For warm air heating systems, the output capacity must be between 100% and 140% of calculated system load unless a larger size is dictated by the cooling equipment selection.
- 22. Either factory-installed or field-installed TXV's may be used. For field-installed TXV's, ensure that sensing bulbs are insulated and tightly clamped to the vapor line with good linear thermal contact at the recommended orientation, usually 4 or 8 o'clock.
- 23. Examples of return or supply duct static pressure measurement locations are; plenum, cabinet, trunk duct, as well as front, back, left or right side. Test hole locations shall be well marked and accessible.
- 24. Ducts shall not include coiled or looped ductwork except to the extent needed for acoustical control. Balancing dampers or proper duct sizing shall be used instead of loops to limit flow to diffusers. When balancing dampers are used, they shall be located at the trunk to limit noise unless the trunk will not be accessible when the balancing process is conducted. In such cases, Opposable Blade Dampers (OBD) or dampers located in the duct boot are permitted.
- 25. Condensate pan shall be made of corrosion-resistant materials, to include galvanized steel and plastic. Drain pan shall drain condensate to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drainage system; and shall be equipped with a backflow prevention valve when drained to a shared drainage system, such as a storm water management system.



Home Address: Unit 1B 1715 W. IDAHO ST City: Boise	State: If	D Zij	o Code: 83	3702
System Description ² FC-102A and FC-102B Cooling system for temporary oc		Yes □ No	0	
1. Whole-Building Mechanical Ventilation Design ⁴		Builder Verified ⁵	Cont. Verified ⁶	N/A
1.1 Ventilation system installed that has been designed to meet ASHRAE 62.2-2010 requirements but not limited to, requirements in Items 1.2-1.5. 7	including,	Ø	đ	-
1.2 Ventilation system does not utilize an intake duct to the return side of the HVAC system unless is designed to operate intermittently and automatically based on a timer and to restrict outdoo when not in use (e.g., motorized damper).			ď	-
1.3 Documentation is attached with ventilation system type, location, design rate, and frequency and of each ventilation cycle.	d duration		ø′	-
1.4 If present, continuously-operating vent. & exhaust fans designed to operate during all occupiable	e hours.			V
1.5 If present, intermittently-operating whole-house ventilation system designed to automatically operated least once per day and at least 10% of every 24 hours.				2
2. Heating & Cooling System Design 4,8 - Parameters used in the design calculations shall reflect the temperatures, home orientation, number of bedrooms, conditioned floor area, window area, predominant winfiltration rate, mechanical ventilation rate, presence of MERV6 or better filter, and indoor temperature se	vindow performa	ance and in	sulation level	s,
2.1 Heat Loss / Gain Method: ☐ Manual J v8 ☑ 2009 ASHRAE ☐ Other:	1			Ĭ-
2.2 Duct Design Method: ☐ Manual D ☑ Other: Engineer		Ø		
2.3 Equipment Selection Method: ☐ Manual S ☐ OEM Rec. ☐ Other: Engineer		Ø		-
2.4 Outdoor Design Temperatures: ⁹ Location: Boise 1%: 95 °F 99%: 10.4 °F		v		
2.5 Orientation of Rated Home (e.g., North, South): North		2		-
2.6 Number of Occupants Served by System; 10 2	-	V		-
2.7 Conditioned Floor Area in Rated Home: 555 Sq. Ft.		Ø		-
2.8 Window Area in Rated Home: 20 Sq. Ft.		V		-
2.9 Predominant Window SHGC in Rated Home: 11 0.46	<u> </u>	<u> </u>		
2.10 Infiltration Rate in Rated Home: ¹² Summer: average Winter: average				
2.11 Mechanical Ventilation Rate in Rated Home: 35 CFM				_
2.12 Design Latent Heat Gain: 561 BTUh	-	<u> </u>	0	
2.13 Design Sensible Heat Gain: 6,233 BTUh	-			
2.14 Design Total Heat Gain: 6,794 BTUh	\ 			
2.15 Design Total Heat Loss: 6,010 BTUh	-	<u> </u>		_
2.16 Design Airflow: ¹³ Equipment supply CFM	i i	<u> </u>		
	er Column			0
2.18 Full Load Calculations Report Attached ¹⁵	- Coldinii			
3. Selected Cooling Equipment, If Cooling Equipment to be Installed				
3.1 Condenser Manufacturer & Model: Samsung model JXH24	- W	2		
3.2 Evaporator / Fan Coil Manufacturer & Model: Samsung model JNH12		2		
3.3 AHRI Reference #: ¹⁶ 205291854		9		
3.4 Listed Efficiency: 11.4 EER 18 SEER		7		
3.5 Metering Device Type: ☐ TXV ☐ Fixed orifice ☐ Other:		Ø		
3.6 Refrigerant Type: ☐ R-410a ☐ Other:				
3.7 Fan Speed Type: 17	-			
3.8 Listed Sys. Latent Capacity at Design Cond.: 18 BTUh	-			
3.9 Listed Sys. Sensible Capacity at Design Cond.: ¹⁸ 3.10 Listed Sys. Total Capacity at Design Cond.: ¹⁸ 22,000 BTUh BTUh	-			
3.11 If Listed Sys. Latent Capacity (Value 3.8) ≤ Design Latent Heat Gain (Value 2.12), ENERGY S' certified dehumidifier installed	TAR			<u> </u>
3.12 Listed Sys. Total Capacity (Value 3.10) is 95-115% of Design Total Heat Gain (Value 2.14) or nominal size ^{8, 19}	next			
3.13 AHRI Certificate Attached ¹⁶				0
4. Selected Heat Pump Equipment, If Heatpump to be Installed				
4.1 AHRI Listed Efficiency: 9.5 HSPF or Ground-Source: COP				
4.2 Performance at 17°F: Capacity 25000 BTUh Efficiency: COP 20				
4.3 Performance at 47°E: Congeity 25000 PTIIb Efficiency: COD 20				



5. Selected Furnace, if Furnace to be Installed		Builder Verified ⁵	Cont. Verified ⁶	N/A
5.1 Furnace Manufacturer & Model:				0
5.2 Listed Efficiency: AFUE	Ī			Ø
5.3 Listed Output Heating Capacity:BTUh	[Ø
5.4 Listed Output Heat. Cap. (Value 5.3) is 100-140% of Design Total Heat Loss (Value 2.15) o nominal size ^{8,21}	r next			7
6. Refrigerant Tests - Run system for 15 minutes before testing Note: If outdoor ambient temperature at the condenser is ≤ 55°F or, if known, below the manufacturer the cooling cycle, then the system shall include a TXV, and the contractor shall mark "N/A" on the Che	r-recommended mini	imum operati & 7. ²²	ng temperatu	ire for
6.1 Outdoor ambient temperature at condenser:°F ii	DB			
6.2 Return-side air temperature inside duct near evaporator, during cooling mode: °F \				2
6.3 Liquid line pressure:psig	a			0
6.4 Liquid line temperature: "F		1		<u> </u>
6.5 Suction line pressure:				v v
6.6 Suction line temperature:				
7. Refrigerant Calculations				
For System with Thermal Expansion Valve (TXV):				
7.1 Condenser saturation temperature: °F DB (Using Value 6.3)				0
7.2 Subcooling value: °F DB (Value 7.1 - Value 6.4)				
7.3 OEM subcooling goal: °F DB				0
7.4 Subcooling deviation: °F DB (Value 7.2 – Value 7.3)				Ø
For System with Fixed Orifice:				
7.5 Evaporator saturation temperature: °F DB (Using Value 6.5)				Ø
7.6 Superheat value: °F DB (Value 6.6 – Value 7.5)				Ø
7.7 OEM superheat goal: "F DB (Using superheat tables and Values 6.1 & 6.2)				Ø
7.8 Superheat deviation: °F DB (Value 7.6 – Value 7.7)				Ø
7.9 Value 7.4 is ± 3°F or Value 7.8 is ± 5°F				Ø
7.10 An OEM test procedure (e.g., as defined for a ground-source heat pump) has been used in super-heat process and documentation has been attached that defines this procedure	n place of sub-cooli	ing or		Ø
8. Electrical Measurements - Taken at electrical disconnect while component is in opera-	tion			
8.1 Evaporator or furnace air handler fan: amperageline voltage				Ø
8.2 Condenser unit: amperageline voltage				V
8.3 Electrical measurements within OEM-specified tolerance of nameplate value				
9. Air Flow Tests				
9.1 Air volume at evaporator: CFM				
9.2 Test performed in which mode? ☐ Heating ☐ Cooling				Ø
9.3 Return duct static pressure: IWC Test Hole Location				
9.4 Supply duct static pressure:IWC Test Hole Location:	. 23			
9.5 Test hole locations are well-marked and accessible ²³				
9.6 Airflow volume at evaporator (Value 9.1), at fan design speed and full operating load, \pm 15% system design (Value 2.16) or within range recommended by OEM	of the airflow requi	ired per		Ø
10. Air Balance			1.00	
10.1 Balancing report prepared and attached indicating the room name and design airflow for ear individual room airflows measured and documented through one of the following options:			n addition, f	inal
10.1.1 Measured by contractor using ANSI / ACCA 5 QI-2007 protocol, documented by con report, & verified by contractor to be within the greater of ± 20% or 25 CFM of design	n airflow ²⁴ , OR;			2
10.1.2 To be measured, documented, and verified by a Rater per Item 1.4.2 of the HVAC S	ystem QI Rater Ch	ecklist		2
11. System Controls				
11.1 Operating and safety controls meet OEM requirements				
 12. Drain pan 12.1 Corrosion-resistant drain pan, properly sloped to drainage system, included with each HVA condensate ²⁵ 	C component that p	produces		
	entialing Organization	on: ACCA /	AE / Other	
HVAC Contractor Name: Caleb Knutson. HVAC Contractor Signature:	1		5/8/23	
Builder Name: 5 Viser Builder Signature: 6 DAVID 1	Teldine	Date:	-1-1	23



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- have a sill height of not more than 44 inches above the floor; AND
- have a minimum net clear opening of 5.7 sg. ft.: AND
- have a minimum net clear opening height of 24 in.; AND
- have a minimum net clear opening width of 20 in.; AND
- be operational from the inside of the room without the use of keys, tools or special knowledge.
- 11. "Predominant" is defined as the SHGC value used in the greatest amount of window area in the home.
- 12. Infiltration rate shall reflect value used in confirmed or projected HERS rating for rated home. Alternatively, use "Average" or "Semi-loose" values for the cooling season infiltration rates and "Semi-tight" or "Average" values for the heating season infiltration rates, as defined by ACCA Manual J, Eighth Edition, Version Two.



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- 15. The load calculation for the home shall be provided, documenting all design elements and all resulting loads, including but not limited to the values listed in Items 2.1 through 2.17.
- 16. All evaporators and condensing units shall be properly matched as demonstrated by an attached AHRI certificate. If an AHRI certificate is not available, a copy of OEM-provided catalog data indicating acceptable combination selection and performance data shall be attached.
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- 18. Listed system capacity at design conditions is to be obtained from the OEM expanded performance data.
- 19. For cooling systems, the next largest nominal piece of equipment may be used that is available to satisfy the latent and sensible requirements. Single-speed systems generally have OEM nominal size increments of ½ ton. Multi-speed or multi-stage equipment may have OEM nominal size increments of one ton. Therefore, the use of these advanced system types can provide extra flexibility to meet the equipment sizing requirements.
- 20. Items 4.2 and 4.3 are not applicable to ground-source heat pumps.
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- 23. Examples of return or supply duct static pressure measurement locations are: plenum, cabinet, trunk duct, as well as front, back, left or right side. Test hole locations shall be well marked and accessible.
- 24. Ducts shall not include coiled or looped ductwork except to the extent needed for acoustical control. Balancing dampers or proper duct sizing shall be used instead of loops to limit flow to diffusers. When balancing dampers are used, they shall be located at the trunk to limit noise unless the trunk will not be accessible when the balancing process is conducted. In such cases, Opposable Blade Dampers (OBD) or dampers located in the duct boot are permitted.
- 25. Condensate pan shall be made of corrosion-resistant materials, to include galvanized steel and plastic. Drain pan shall drain condensate to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drainage system; and shall be equipped with a backflow prevention valve when drained to a shared drainage system, such as a storm water management system.



Home Address: Unit 1A 1715 W. IDAHO	ST City: Boise	State:	ID Zip	Code: 83	3702
System Description ² FC-102A and FC-102B	Cooling system for temp	orary occupant load?	³ Yes □ No	e e	
1. Whole-Building Mechanical Ventilation Desig	gn ⁴		Builder Verified ⁵	Cont. Verified ⁶	N/A
1.1 Ventilation system installed that has been design but not limited to, requirements in Items 1.2-1.5. ⁷	ned to meet ASHRAE 62.2-2010 requ	irements including,	2	Ø	-
1.2 Ventilation system does not utilize an intake duct is designed to operate intermittently and automat when not in use (e.g., motorized damper).				ď	_
1.3 Documentation is attached with ventilation system of each ventilation cycle.	n type, location, design rate, and frequ	ency and duration	Z		-
1.4 If present, continuously-operating vent. & exhaust					v
1.5 If present, intermittently-operating whole-house ve least once per day and at least 10% of every 24 h	ours.				Ø
2. Heating & Cooling System Design 4,8 - Parame temperatures, home orientation, number of bedrooms, co infiltration rate, mechanical ventilation rate, presence of h	onditioned floor area, window area, pred	ominant window perfor	mance and in	sulation levels	S,
	☑ 2009 ASHRAE ☐ Other:		Ø		-
2.2 Duct Design Method:	☐ Manual D ☑ Other: Engineer		2		
2.3 Equipment Selection Method: ☐ Manual S	☐ OEM Rec. ☑ Other: Engineer		Ø		-
2.4 Outdoor Design Temperatures: 9 Location: Boise	1%: 95 °F 99%: 10.!	°F	ℯ		
	North		V		
	2				
	586	Sq. Ft.	2		-
	76				-
	0.46				_
10	Summer: average Winter: average	1	2		_
	35	CFM	<u> </u>		
	561	BTUh	Image: section of the content of the		-
2.12.2.3.1	10,893	BTUh			
	11,454	BTUh			-
=111 9 +11311 1 +1111 1 +11111	9,641	BTUh			-
2.70 Bosigir Fotor Fotor Boson	Equipment supply	CFM	0		-
2.17 Design Duct Static Pressure: 14	Equipment supply	In. Water Column			
2.18 Full Load Calculations Report Attached ¹⁵		III. Water Column			
3. Selected Cooling Equipment, If Cooling Equi	nment to be installed				
3.1 Condenser Manufacturer & Model:	Samsung model JXH24		9		
3.2 Evaporator / Fan Coil Manufacturer & Model:	Samsung model JNH12				
3.3 AHRI Reference #: 16	205291854	İ	0		
3.4 Listed Efficiency:	11.4 EER 18 SEEF	2	2		
	xed orifice ☑ Other:		9		
3.6 Refrigerant Type: ☑ R-	-410a		2		
	ariable (ECM / ICM) Other:	[Ø		
3.8 Listed Sys. Latent Capacity at Design Cond.: 18		BTUh			
3.9 Listed Sys. Sensible Capacity at Design Cond.: 18		BTUh			2
3.10 Listed Sys. Total Capacity at Design Cond.: 18		BTUh			
3.11 If Listed Sys. Latent Capacity (Value 3.8) ≤ Design certified dehumidifier installed					Ø
3.12 Listed Sys. Total Capacity (Value 3.10) is 95-119 nominal size 8,19	5% of Design Total Heat Gain (Value	2.14) or next	2		
3.13 AHRI Certificate Attached 16					
4. Selected Heat Pump Equipment, If Heatpump					
	or Ground-Source: COP	-			
4.2 Performance at 17°F: Capacity 25000 BTUh 4.3 Performance at 47°F: Capacity 25000 BTUh		ŀ	0		



5. Selected Furnace, if Furnace to be installed Builder Verified 5		Cont. Verified ⁶	N/A	
5.1 Furnace Manufacturer & Model:				Ø
5.2 Listed Efficiency: AFUE				Ø
5.3 Listed Output Heating Capacity:BTUh				2
5.4 Listed Output Heat. Cap. (Value 5.3) is 100-140% of Design Total Heat Loss (Value 2. nominal size 8.21	15) or next			Ø
6. Refrigerant Tests - Run system for 15 minutes before testing Note: If outdoor ambient temperature at the condenser is ≤ 55°F or, if known, below the manufa the cooling cycle, then the system shall include a TXV, and the contractor shall mark "N/A" on th	cturer-recommended min	imum operati & 7. ²²	ng temperatu	ure for
6.1 Outdoor ambient temperature at condenser:	°F DB			0
6.2 Return-side air temperature inside duct near evaporator, during cooling mode:	°F WB			Ø
6.3 Liquid line pressure:	_ psig			
	°F DB			2
	_ psig			
6.6 Suction line temperature:	poig °F DB			
7. Refrigerant Calculations				
For System with Thermal Expansion Valve (TXV):				
7.1 Condenser saturation temperature: °F DB (Using Value 6.3)				0
7.2 Subcooling value: °F DB (Value 7.1 - Value 6.4)				Ø
7.3 OEM subcooling goal: °F DB				0
7.4 Subcooling deviation: °F DB (Value 7.2 – Value 7.3)				Ø
For System with Fixed Orifice:				
7.5 Evaporator saturation temperature: °F DB (Using Value 6.5)				2
7.6 Superheat value: °F DB (Value 6.6 – Value 7.5)				V
7.7 OEM superheat goal: °F DB (Using superheat tables a	ind Values 6.1 & 6.2)	Î		P
7.8 Superheat deviation: °F DB (Value 7.6 – Value 7.7)				V
7.9 Value 7.4 is ± 3°F or Value 7.8 is ± 5°F				e e
7.10 An OEM test procedure (e.g., as defined for a ground-source heat pump) has been us super-heat process and documentation has been attached that defines this procedure		ing or		Ø
8. Electrical Measurements – Taken at electrical disconnect while component is in o	peration			
8.1 Evaporator or furnace air handler fan: amperageline voltag	je			
8.2 Condenser unit: amperageline volta	ge			V
8.3 Electrical measurements within OEM-specified tolerance of nameplate value				Ø
9. Air Flow Tests				
9.1 Air volume at evaporator: CFM		1		Ø
9.2 Test performed in which mode? ☐ Heating ☐ Cooling		1		7
9.3 Return duct static pressure: IWC Test Hole Loc				
9.4 Supply duct static pressure: IWC Test Hole Loc	ation: 23			Ø
9.5 Test hole locations are well-marked and accessible ²³				
9.6 Airflow volume at evaporator (Value 9.1), at fan design speed and full operating load, ± system design (Value 2.16) or within range recommended by OEM	15% of the airflow requ	ired per		Ø
10. Air Balance		.,,	1.100	
10.1 Balancing report prepared and attached indicating the room name and design airflow individual room airflows measured and documented through one of the following option	ns:		n addition, t	inai
10.1.1 Measured by contractor using ANSI / ACCA 5 QI-2007 protocol, documented by report, & verified by contractor to be within the greater of ± 20% or 25 CFM of d	lesign airflow ²⁴ , OR;			
10.1.2 To be measured, documented, and verified by a Rater per Item 1.4.2 of the HV	AC System QI Rater Ch	ecklist		Ø
11. System Controls				L21
11.1 Operating and safety controls meet OEM requirements				
 12. Drain pan 12.1 Corrosion-resistant drain pan, properly sloped to drainage system, included with each condensate ²⁵ 	HVAC component that	produces		U
HVAC Company Name: Advanced Heating And Cooling	Credentialing Organizati	on: ACCA / /	AE / Other	
HVAC Contractor Name: Caleb Knutson , HVAC Contractor Signature:	/ , /		5/8/23	
Builder Name: 5 Disser Builder Signature: 5 David	Juldine	Date:	5/22/7	13



This Checklist is designed to align with the requirements of ASHRAE 62.2-2010 and published addenda and ANSI / ACCA's 5 QI-2007
protocol, thereby improving the performance of HVAC equipment in new homes when compared to homes built to minimum code.
However, these features alone cannot prevent all ventilation, indoor air quality, and HVAC problems (e.g., those caused by a lack of
maintenance by occupants). Therefore, this Checklist is not a guarantee of proper ventilation, indoor air quality, or HVAC performance.

This Checklist applies to ventilation systems; to split air conditioners, unitary air conditioners, air-source heat pumps, and water-source (i.e., geothermal) heat pumps up to 65,000 Btu / h with forced-air distribution systems (i.e., ducts) and to furnaces up to 225,000 Btu / h with forced-air distribution systems (i.e., ducts). All other permutations of equipment (e.g., boilers, mini-split / multi-split systems) and distribution systems are exempt. If the ventilation system is the only applicable system installed in the home, then only Section 1 shall be completed.

One Checklist shall be completed for each system and provided to the Rater.

- 2. Description of HVAC system location or area served (e.g., "whole house", "upper level", "lower level").
- 3. Check "Yes" if this system is to handle temporary occupant loads. Such a system may be required to accommodate a significant number of guests on a regular or sporadic basis and shall be handled by a supplemental cooling system (e.g., a small, single-package unit or split-coil unit) or by a system that can shift capacity from zone to zone (e.g., a variable volume system).
- 4. The person responsible for the heating, cooling, & ventilation design shall be responsible for completing Sections 1 and 2 of this Checklist.
- 5. For Sections 1 through 5, the 'Builder Verified' column shall be used to indicate items verified by the builder (or a firm or HERS Rater hired by the builder). If any Items have been marked 'Builder Verified', then the builder is responsible for these Items and must sign this Checklist. Note that builders are not permitted to verify any Items in Sections 6-12.
- 6. For Sections 1 through 5, the 'Cont. Verified' column shall be used to indicate Items verified by the credentialed contractor (or a firm or HERS Rater hired by the contractor). In contrast, for Sections 6 through 12, the 'Cont. Verified' column shall <u>only</u> be used to indicate Items verified by the credentialed contractor (i.e., neither a builder, nor a firm, nor a HERS Rater are permitted to verify Sections 6 12). The credentialed contractor is responsible for these Items and shall sign this Checklist.
- For proper procedures, exceptions, and selection methods see ASHRAE 62.2-2010 and published addenda. All components shall be
 designed and installed per local codes, manufacturers' installation instructions, engineering documents, and regional ENERGY STAR
 program requirements.
 - The system shall have at least one supply or exhaust fan with associated ducts and controls. Local exhaust fans are allowed to be part of an exhaust **ventilation** system. **Outdoor** air ducts connected to the return side of an air handler are allowed to be part of a supply ventilation system if manufacturer requirements for return air temperature are met.
- 8. Heating and cooling loads shall be calculated, equipment shall be selected, and duct systems shall be sized according to the latest editions of ACCA Manuals J, S, & D, respectively, 2009 ASHRAE Handbook of Fundamentals, or other methodology approved by the Authority Having Jurisdiction. The HVAC system design shall be completed for the specific configuration (e.g., plan, elevation, option, and orientation) of the home to be built except as permitted herein.
 - For each house plan with multiple configurations (e.g., orientations, elevations, options), the loads shall be calculated for each potential configuration. If the loads across all configurations vary by $\leq 25\%$, then the largest load shall be permitted to be used for equipment selection for all configurations, subject to the over-sizing limits of ACCA Manual S. Otherwise, the contractor shall group the load for each configuration into a set with $\leq 25\%$ variation and equipment selection shall be completed for each set of loads.
 - For each house plan with multiple configurations, the room-level design airflows shall be calculated for each potential configuration. If the design airflows for each room vary across all configurations by $\leq 25\%$ or 25 CFM, then the average room-level design airflow shall be permitted to be used when designing the duct system. Otherwise, the contractor shall group the room-level design airflow for each configuration into a set with $\leq 25\%$ or 25 CFM variation and the duct design shall be completed for the average airflow of that set.
- 9. If the design conditions are dictated by a code or regulation, then the requirements of the lawful or controlling authority supersedes the Manual J or ASHRAE default design values. Otherwise, the default values shall be used. The values for the geographically closest location shall be selected or a justification provided for the selected location.
- 10. The number of occupants among all HVAC systems in the home must be equal to the number of bedrooms, as defined below, plus one. Occupants listed for systems that are indicated in the header as a cooling system for temporary occupant loads, as described in Footnote 3, shall be permitted to exceed this limit.

A bedroom is defined by RESNET as a room or space 70 sq. ft. or greater size, with egress window and closet, used or intended to be used for sleeping. A "den", "library", or "home office" with a closet, egress window, and 70 sq. ft. or greater size or other similar rooms shall count as a bedroom, but living rooms and foyers shall not.

- have a sill height of not more than 44 inches above the floor; AND
- have a minimum net clear opening of 5.7 sq. ft.; AND
- have a minimum net clear opening height of 24 in.; AND
- have a minimum net clear opening width of 20 in.; AND
- be operational from the inside of the room without the use of keys, tools or special knowledge.
- 11. "Predominant" is defined as the SHGC value used in the greatest amount of window area in the home.
- 12. Infiltration rate shall reflect value used in confirmed or projected HERS rating for rated home. Alternatively, use "Average" or "Semi-loose" values for the cooling season infiltration rates and "Semi-tight" or "Average" values for the heating season infiltration rates, as defined by ACCA Manual J, Eighth Edition, Version Two.



- 13. Design airflow is the design value(s) for the blower in CFM, as determined by using the manufacturer's expanded performance data to select equipment, per ACCA Manual S procedures.
- 14. Design duct static pressure shall account for the installation of a MERV 6 or higher filter.
- 15. The load calculation for the home shall be provided, documenting all design elements and all resulting loads, including but not limited to the values listed in Items 2.1 through 2.17.
- 16. All evaporators and condensing units shall be properly matched as demonstrated by an attached AHRI certificate. If an AHRI certificate is not available, a copy of OEM-provided catalog data indicating acceptable combination selection and performance data shall be attached.
- 17. If the whole-house ventilation system utilizes the HVAC air handler, then the fan speed type shall be ECM / ICM and variable speed, or include a controller (e.g., smart cycler) that reduces the ventilation run time by accounting for hours when HVAC system is heating or cooling the home.
- 18. Listed system capacity at design conditions is to be obtained from the OEM expanded performance data.
- 19. For cooling systems, the next largest nominal piece of equipment may be used that is available to satisfy the latent and sensible requirements. Single-speed systems generally have OEM nominal size increments of ½ ton. Multi-speed or multi-stage equipment may have OEM nominal size increments of one ton. Therefore, the use of these advanced system types can provide extra flexibility to meet the equipment sizing requirements.
- 20. Items 4.2 and 4.3 are not applicable to ground-source heat pumps.
- 21. For warm air heating systems, the output capacity must be between 100% and 140% of calculated system load unless a larger size is dictated by the cooling equipment selection.
- 22. Either factory-installed or field-installed TXV's may be used. For field-installed TXV's, ensure that sensing bulbs are insulated and tightly clamped to the vapor line with good linear thermal contact at the recommended orientation, usually 4 or 8 o'clock.
- 23. Examples of return or supply duct static pressure measurement locations are: plenum, cabinet, trunk duct, as well as front, back, left or right side. Test hole locations shall be well marked and accessible.
- 24. Ducts shall not include coiled or looped ductwork except to the extent needed for acoustical control. Balancing dampers or proper duct sizing shall be used instead of loops to limit flow to diffusers. When balancing dampers are used, they shall be located at the trunk to limit noise unless the trunk will not be accessible when the balancing process is conducted. In such cases, Opposable Blade Dampers (OBD) or dampers located in the duct boot are permitted.
- 25. Condensate pan shall be made of corrosion-resistant materials, to include galvanized steel and plastic. Drain pan shall drain condensate to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drainage system; and shall be equipped with a backflow prevention valve when drained to a shared drainage system, such as a storm water management system.