

Comments received on Draft3 of H/ERV Specification 1.0

ID	Comment	Explanation/Rationale	Discussion/ Proposed Action
DF	Line 3, the words “ in Canada” should be deleted.	While it is well understood that the first phase of this program (Tier 1) will apply exclusively to Canada, the present draft refers to a map and climate zones in the US. It also mentions that the US could potentially be included in the second phase (Tier 2) of this program. In order to be consistent with the possibility that this document will serve as the basis for the ENERGY STAR program for H/ERVs in the US, the title of the document should not be specific.	Remove Canada from title
HVI	LINE 3 The words “in Canada” should be deleted	While we recognize it is your intention that the first phase of this program (Tier 1) will apply exclusively to Canada, the present draft refers to a map and climate zones of the US. It also mentions that the US could potentially be included in the second phase (Tier 2) of this program. In order to be consistent with the potential that this document will serve as the basis for the ENERGY STAR program for H/ERVs in the US, the title of the document should not be country specific.	Remove Canada from title
DS	Line 3 and Note at Line 5 – HVI commented three times that there needs to be one ENERGY STAR Standard for the US and Canada with a common implementation date.	Implementing a Canada only specification is giving a huge market advantage to products that are not necessarily the most energy efficient in the US. By the time a tier two program goes into effect there may not be more appropriate product available for the US market. At the very least this is an unfair market advantage for products receiving the Canada only ENERGY STAR Qualification	This is a North American specification with the US opting out of Tier 1 and evaluating participation in Tier 2. There is nothing in the specification that prevents any manufacturer from qualifying an H/ERV product as ENERGY STAR for Canada
HVIN	Line 5	HVI commented three times on earlier versions of the specification proposal that there needs to be one ENERGY STAR program for the US and Canada with a common implementation date. EPA committed to doing this, even in the August 12, 2009 stakeholder meeting and meeting materials, and has since moved away from that commitment. Some of our manufacturers have expressed concern that even with “disclaimers” on product labeling noting that the ENERGY STAR qualification is for Canada only, the purchasing public will be most influenced by the presence of the highly-recognizable, highly-valued ENERGY STAR logo to the point of overlooking and even ignoring the “disclaimers”. Some of our manufacturers feel that this provides significant	This is a North American specification with the US opting out of Tier 1 and evaluating participation in Tier 2. There is nothing in the specification that prevents any manufacturer from qualifying an H/ERV product as ENERGY STAR for Canada

		advantage to manufacturers that build product for the Canadian market and puts those companies that build products for the US market at a distinct disadvantage	
HVIN	Line 68-131	This verbiage, though interesting, should not appear in the specification. Instead, we suggest this verbiage be included in the Partner Agreement that each manufacturer signs with EPA. The specification itself should be focused on matters of direct importance to the technical program. Further, we object to the implication in lines 69 through 71 that manufacturers who choose to participate in these “special” measures will receive recognition and support that exceeds that provided to manufacturers who don’t choose to participate in these extra measures. The program should be administered equitably or not at all	This is standard verbiage in other EPA ENERGY STAR specifications
DF	Line 150, add the words “equation 12” after “C439-09”.	This proposed change does not change the meaning of the definition; it adds detail making it more precise.	Accept
HVI	LINE 150 Add the words “equation 12” after “C439-09”.	This proposed change does not change the meaning of the definition; it adds detail, making it more precise.	Accept
DF	Line 155, add the words “equation 13” after “C439-09”	This proposed change does not change the meaning of the definition; it adds detail making it more precise.	Accept
HVI	LINE 155 Add the words “equation 13” after “C439-09”	This proposed change does not change the meaning of the definition; it adds detail, making it more precise.	Accept
DF	Lines 227, 240 and 249, remove the words “within 10% of each other	It has never been a criterion for H/ERVs to be tested at about the same airflow rates at different temperatures, so there is no precedent for this requirement. This new requirement creates an unreasonable advantage for those products which have flow rates within 10% by coincidence rather than test criteria. And it creates a significant disadvantage for those products that would be disqualified only because of this “within 10%” requirement as they will need to be retested, without any modification, so that they become eligible. The cost of such retesting is very significant (\$12K per unit) as manufacturers will have to retest multiple units. The ENERGY STAR program seeks to segregate the best performing products; therefore restricting units that would otherwise meet the ENERGY STAR criteria for this reason, is not in keeping with the goal of the program. However, this criterion could certainly be implemented for future tests of existing or new products where the potential cost to the manufacturer would be negligible	Without a tolerance, the label would need to be expanded to indicate exactly at which flows the unit complied with the performance specifications for each condition. In addition, we would potentially see tests done at wildly different flows to gain compliance, with no controls that would actually implement the changes to the flows when installed. For example, 0C test data at 150 cfm and -25 data at 20 cfm. In practice, once an H/ERV is installed it does not automatically change flow rate at different outdoor temperature

			so accepting performance ratings at different flows would be confusing and misleading. Removing this requirement would slightly increase the number of qualified products and require increasing the SRE and/or fan efficacy requirements to maintain a pass rate of nominally 25% for Tier 1.
JB	lines 227, 240 and 249	HRVs and ERVs have had limited commercial success in much of the North American market due to their costs and complexity of installation. These 10% requirements require extensive cost of testing for no apparent benefit to the overall product acceptance. Furthermore the specification is being influenced by a small number of units that may by happenstance meet the criteria	Without a tolerance, the label would need to be expanded to indicate exactly at which flows the unit complied with the performance specifications for each condition. In addition, we would potentially see tests done at wildly different flows to gain compliance, with no controls that would actually implement the changes to the flows when installed. For example, OC test data at 150 cfm and -25 data at 20 cfm. In practice, once an H/ERV is installed it does not automatically change flow rate at different outdoor temperature so accepting performance ratings at different flows would be confusing and misleading. Removing this requirement would slightly increase the number of qualified products and require increasing the SRE and/or fan efficacy requirements to maintain a pass rate of nominally 25% for Tier 1.
DS	Line 225-228	We support the need for publishing on product labeling and product literature the air flow rate the product was tested at to meet the qualification specifications. We also support the need for tests required in a particular	OK

		zone to be within 10% of each other so that it is confirmed that the unit passes all criteria at that air flow rate. With this 10% rule being in effect it is acceptable that the published air flow rate for the product qualification to be the air flow of the 32 °F test.	
HVIN	LINES 225 – 228, 240 and 249	<p>We have serious concerns with the wording for wattage (that the wattage at 0°C has to qualify at an air flow of plus or minus 10% from the cold weather airflow). Initial discussions on this topic indicated manufacturers would be required only to meet the efficiency and watts at any rated airflow at 0°C, and meet the efficiency at -25°C. At the time this was last discussed, HVI members agreed this was a problem and recommended a limit of 0.9 W/cfm.</p> <p>We suggest that the words “within 10% of each other, and” be removed. It has never been a criterion for H/ERVs to be tested at about the same airflow rates at different temperatures, so there is no precedent for this requirement. This proposed requirement creates an unreasonable advantage for those products which have flow rates within 10% by coincidence rather than test criteria. And it creates a significant disadvantage for those products that would be disqualified only because of this “within 10%” requirement as they will need to be retested, without any modification, so that they become eligible. The cost of such retesting is very significant (\$12,000 per unit) as manufacturers will have to retest multiple units. However, this criterion could certainly be implemented for future tests of existing or new products where the potential cost to the manufacturer would be negligible</p>	Without a tolerance, the label would need to be expanded to indicate exactly at which flows the unit complied with the performance specifications for each condition. In addition, we would potentially see tests done at wildly different flows to gain compliance, with no controls that would actually implement the changes to the flows when installed. For example, 0C test data at 150 cfm and -25 data at 20 cfm. In practice, once an H/ERV is installed it does not automatically change flow rate at different outdoor temperature so accepting performance ratings at different flows would be confusing and misleading. Removing this requirement would slightly increase the number of qualified products and require increasing the SRE and/or fan efficacy requirements to maintain a pass rate of nominally 25% for Tier 1.
DS	Line 249	We support the literature and product labeling of the ENERGY STAR qualifying airflow for a product. Because two tests are proposed in the “Heating” and “Cooling” zones these two test must be within 10% airflow of each other so that it is clear that the product qualifies at the air flow rate represented by the 32 °F test	Agreed
DS	Line 344	It is necessary to place the air flow rate that the product is qualified for adjacent to the ENERGY STAR label on the product, the product packaging and the product literature. This air flow rate is the qualified rate or rates at the 32°F test.	Agreed

DF	Line 351, replace the words “the front” by “the same side as the ENERGY STAR mark	It is not always obvious which is the ‘front side’ of these products or their packaging, nor is there certainty that the ‘front side’ will be the most exposed once installed. The proposed change will ensure that the predominant side of the product / packaging will bear the ENERGY STAR mark and that the disclaimer will be displayed close to it, on the same side.	Accept
HVI	LINE 351 Replace the words “the front” by “the same side as the ENERGY STAR mark”.	It is not always obvious which is the ‘front side’ of these products or their packaging. Nor is there certainty that the ‘front side’ will be the most exposed once installed. The proposed change will ensure that the predominant side of the product / packaging will bear the ENERGY STAR mark and that the disclaimer will be displayed close to it, on the same side.	Accept
DF	Line 370, add the words “on this product, and all derived models,” after the words “ENERGY STAR mark	This proposed change is intended to confirm that, the obligation to cease using the ENERGY STAR mark applies only to the products that are in violation, or that failed verification / challenge testing. It further ensures that all derived models in this family of products also cease using the ENERGY STAR mark.	Each product will qualify or not based on its own published ratings provided by its manufacturer. ENERGY STAR will not administer a Base vs. derived model analysis. However, if a derived model fails a verification or challenge test and loses ENERGY STAR status, it is anticipated that the manufacturer of the base model will become involved in corrective measures
HVI	LINE 370 Add the words “on this product, and all derived models,” after the words “ENERGY STAR mark	This proposed changed is intended to confirm that, the obligation to cease using the ENERGY STAR mark applies only to the products that are in violation, or that failed verification / challenge testing. It further ensures that all derived models in this family of products also cease using the ENERGY STAR mark.	ENERGY STAR status will be based on a product meeting the specified requirements. As such all models (not just base models) must demonstrate compliance. However, if a derived model fails a verification or challenge test and loses ENERGY STAR status, it is anticipated that the manufacturer of the base model will become involved in corrective measures
DF	Lines 406, 407 and 408, remove the sentence “The organization shall ensure that 100% of each Partner’s	The cost of verification testing is very high (\$12K per unit) for a product category that generates relatively low sales volumes. Increasing the frequency of product verification to 1/3 of base models per year makes the cost of participating in this program totally prohibitive. Also, if just the	ENERGY STAR verification requirements apply only to qualified products, not all base models.

	certified base model products that are ENERGY STAR qualified undergo verification testing every three years	current H/ERV manufacturers had to meet this criterion, the resulting verification testing would occupy most of the available time of the only approved testing lab, leaving very limited lab availability for manufacturers to prepare for the implementation of Tier 2 of the program. Furthermore, many of the models that could be verified at high cost to the manufacturer during the next 30 months would become disqualified when Tier 2 of the program becomes effective, which represents a total waste of money. It is proposed that the verification frequency currently used by HVI be referenced for Tier 1 of the program; this frequency could later be revisited, using the experience gained before Tier 2 implementation.	Recognizing the concerns that have been expressed relating to testing cost and laboratory capacity, the time period for verification has been revised to 5 years from 3 years
JB	Requirement to verify each base model every three years.	While this is a good criterion for standard residential ventilation fans, it is costly and limiting to the HRV/ERV products. Currently, only one laboratory is certified by HVI to test HRV/ERV performance, and this is the only one I know of in North America that can do the -25C low temperature testing. That laboratory, I feel, would not have capacity to test the volumes anticipated with this verification cycle. I recommend a 6 year cycle with caveat that if a manufacturer fails a base model, that base model is now on a three year cycle.	ENERGY STAR verification requirements apply only to qualified products, not all base models. Recognizing the concerns that have been expressed relating to testing cost and laboratory capacity, the time period for verification has been revised to 5 years from 3 years
HVI	LINES 406 - 408 We propose that the verification frequency currently used by HVI be utilized for Tier 1 of the program (one base model every other year)	Note that Tier 1 will be in effect for only 2 ½ years and it would be unfortunate for manufacturers to spend money verifying products during Tier 1 which will end up being disqualified based on more restrictive Tier 2 requirements. We further recommend that a somewhat more reasonable 6-year verification cycle be implemented for Tier 2. Please note that even using a 6-year schedule, the number of units being verified each year, based on currently certified products, would increase by 300%. The cost to manufacturers would increase by the same percentage. Based on figures provided by Exova for 2008, HVI estimates that implementation of a 6-year verification cycle would result in lab capacity being at or very near 100%, assuming that the rate of certification and R&D testing continues at the same rate.	ENERGY STAR verification requirements apply only to qualified products, not all base models. Recognizing the concerns that have been expressed relating to testing cost and laboratory capacity, the time period for verification has been revised to 5 years from 3 years Note that the verification requirement in the ENERGY STAR specification only applies to qualified products. For Tier 1 that amounts to less than 30% of base models. Using Tier 2 levels, only about 10% of current base models qualify. Products that are developed to meet the Tier 2 levels will have

			current test reports.
DS	Line 409	The cost of verification testing for H/ERVs is very great relative to the number of units sold. For this reason it is necessary that the frequency of verification testing should be only once every 5 years.	No data on numbers of units sold has been provided to support this claim. Revised to 5 years as recommended.
EO	Note following line 373. note 2nd paragraph, sentence 3	"before or while Tier 2 is in effect, ..." should read ...."before or while Tier 1 is in effect, ..."	It is correct as is
EO	Paragraph 10B lines 456,457	Should read "All products with a date of manufacture on or after the applicable Tier 2 Version 1.0 effective date must meet Tier 2 Version 1.0 requirements..."	Agree. Typos corrected in new draft
EO	1 year minimum warranty requirement	ENERGY STAR products should represent the "best in class" and as such a minimum 2-year non-prorated parts warranty should be required.	This issue was raised in response to previous drafts. There was strong resistance from manufacturers and industry associations to any minimum warranty requirement longer than one year. Note however that the one year is a minimum and the specification does not preclude a manufacturer from providing a longer warranty
EO	General	Otherwise, see no problems and are in complete agreement with intent and implementation.	OK
JB	General	First I must compliment Natural Resources Canada and ENERGY STAR – US for bringing forth this proposal. The Draft 3.0 requirements are well developed and comprehensive. I must also thank you for considering my input on this matter.	OK
JB	General	Our goal is to advance the science and acceptance of HRVs and ERVs to facilitate a larger installed base.	OK
HVI	LINES 166, 170, 172, 174, 181, 192 HVI Publication 911© is incorrectly referenced.	It should not be referred to as "HVI 911 directory" at any time. The correct notations for this copyrighted document are as follows: When referenced the first time - HVI Publication 911: Certified Home Ventilating Products Directory© Second and subsequent references in the same document - HVI Publication 911©	Technically, this may be correct. However, the comment is undermined by the fact that HVI does not follow this suggestion on their own web site for citing their publications or other copyrighted documents (e.g. CSA C439).
HVI	LINE 187 (may be other instances as well)	The correct notations for this copyrighted document are as follows: When referenced the first time – HVI Publication 920: HVI Product	Technically, this may be correct. However, the comment is

	HVI Publication 920© is incorrectly referenced.	Performance Certification Procedure Including Verification and Challenge© Second and subsequent references in the same document – HVI Publication 920©	undermined by the fact that HVI does not follow this suggestion on their own web site for citing their publications or other copyrighted documents (e.g. CSA C439).
HVI	LINE 234 The current climate zone map proposed in the draft is unclear considering EPA's current plan to delay implementation of this program in the US	A better-defined map of North America must be drafted	The current map seems clear as does the statement that EPA will not implement Tier 1 while Canada will. That makes the exact boundaries irrelevant for Tier 1 and it allows for time to modify the boundaries if required before Tier 2 goes into effect.
HVI	LINES 237, 243, 246 etc. HVI previously recommended that the climate zones be called zones 1, 2 and 3 not "heating", "neutral" and "cooling".	There is primarily heating but also some air conditioning in the "heating" zone. There is primarily heating and a more significant need for air conditioning in the "neutral" zone. There is primarily air conditioning but also some heating in the "cooling" zone. The names for the zones have nothing to do with the need for ventilation or the economics. The names certainly are misleading for many applications. HVI members agreed that misunderstanding could be largely avoided by just giving the zones numbers	The descriptive terms are more informative and are not confusing.
DS	Lines 237, 243, 246 etc. – HVI recommended that the zones be called Zones 1, 2 and 3 not heating neutral and cooling.	There is primarily heating but also some air conditioning in the "heating" zone. There is primarily heating and more significant need for air conditioning in the "neutral" zone. There is primarily air conditioning but also some heating in the "cooling" zone. The names for the zones have nothing to do with the need for ventilation or the economics. The names certainly are misleading for many applications. HVI members agreed that misunderstanding could be largely avoided by just giving the zones numbers.	The descriptive terms are more informative and are not confusing.
HVI	LINE 343 Define "close proximity".	This phrase allows broad interpretation.	Close proximity is a tautology. However it is commonly used and understood to mean "Near to" or "close to". It has been revised to "adjacent to" in the final draft.
HVI	LINE 347 The disclaimer label should be sized so that consumers	This will be particularly important during Tier 1 since manufacturers have indicated that they will be marketing the exact same products with the exact same packaging throughout Canada and the US. We need to take extra	No suggested size for the label has been provided

	casually glancing at the packaging will be able to tell that even though the ENERGY STAR label is affixed, the product is not qualified universally.	measures to minimize consumer confusion and avoid placing at a disadvantage manufacturers selling only in the US at a marketing disadvantage	
CS	Upper end capacity limitation (500 cfm).	I find no problem with this limit and agree that some upper limit should be specified in order to limit the applicability of the standard to residential products.	OK
HVI	LINE 211	At this time, the single authorized testing lab (Exova) is only capable of conducting the leakage and fan curve section of testing up to 300 CFM.	Therefore there is little likelihood that they will submit any reports to HVI for products that exceed the proposed limit of 500 cfm for ENERGY STAR recognition. In addition, the lab test capacity could be expanded if demand warranted, and the specification is not exclusive to HVI listed products. Other accredited laboratories are permitted. 500 cfm was selected for consistency with the ENERGY STAR spec for other types of residential ventilating products
DS	Line 211 – We support the upper limit of this specification being 300 CFM, the current limit that the HVI Certification laboratory can reliably test.	This is not an issue of comparing ventilation fans to H/ERVs. This is an issue of identifying objective, Certified performance data identifying the most efficient H/ERV products.	Therefore there is little likelihood that they will submit any reports to HVI for products that exceed the proposed limit of 500 cfm for ENERGY STAR recognition. In addition, the lab test capacity could be expanded if demand warranted, and the specification is not exclusive to HVI listed products. Other accredited laboratories are permitted. 500 cfm was selected for consistency with the ENERGY STAR spec for other types of residential ventilating products
KA	Scope	We feel that NRCAn needs to clearly and explicitly define the scope of the	Therefore there is little likelihood

		<p>program by implementing the following changes:</p> <p>Limiting the capacity to 400 CFM as there are no testing facilities capable of testing units larger than 400 CFM at -25oC for 72 hours.</p> <p>Amending the title of the specification to read (proposed changes are in underline)  ENERGY STAR® Program Requirements for <u>Residential</u> Heat- Recovery Ventilators and Energy Recovery Ventilators (H/ERVs) in Canada</p>	<p>that they will submit any reports to HVI for products that exceed the proposed limit of 500 cfm for ENERGY STAR recognition. In addition, the lab test capacity could be expanded if demand warranted, and the specification is not exclusive to HVI listed products. Other accredited laboratories are permitted. 500 cfm was selected for consistency with the ENERGY STAR spec for other types of residential ventilating products. Accept recommendation to include the word Residential to the title of the specification</p>
DS	Line 229	<p>HVI avoided the lack of agreement over this specification by recognizing that administratively this test is required in Canada and therefore should be included in a zone representing Canada. This avoided disagreement about both need for this as a reliability test for various pieces of equipment in Canada or in some part of the US and the validity of this test as an energy efficiency metric.</p>	<p>This comment recognizes that a -25C test is required in Canada. That is included for Canada within the Tier 1 specification</p>
HVIN	Line 229	<p>In previous versions of this draft specification, HVI avoided the lack of agreement over this issue by recognizing that, administratively, this test is required in Canada and therefore should be included in a zone representing Canada. This avoided disagreement about both need for this as a reliability test for various pieces of equipment in Canada or in some parts of the US as well as the validity of this test as an energy efficiency metric</p>	<p>This comment recognizes that a -25C test is required in Canada. That is included for Canada within the Tier 1 specification</p>
CS	Performance testing at -13°F (-25°C).	<p>While I acknowledge that these environmental conditions will occur only for some North American installations, I support testing at these conditions to differentiate the equipment that performs appropriately for homes sited where such conditions are part of normal winter weather. This will be more important when Tier 2 qualifications by climate zone begin</p>	<p>Rationale for this test has been provided in previous comment tables and within the text box of the draft specification</p>
KA	Low temperature test	<p>AHRI recommends against implementing a Sensible Recovery Efficiency (SRE) at -25°C. This operating condition never occurs in the majority of the North American market. The specific test method and metric does not reliably indicate the relative energy efficiency of different models under general winter conditions. Furthermore, other products such as residential heat pumps are tested at a more common temperature of - 8.3oC (17oF)</p>	<p>Rationale for this test has been provided in previous comment tables and within a text box in the draft specification</p> <p>Most residential air source heat</p>

		and not at the extreme temperature of -25oC (-13oF)	pumps would be operating on backup heat before -25C temperature has been reached so there would be little reason to test them at -25C.
DS	General	<p>RenewAire has previously provided comments regarding the inappropriateness of the SRE test at -13 °F as a measure of reliability or a measurement of energy efficiency. In review, the CSA-439 test protocol calls for a 72 hour test at -13 °F and 40% indoor relative humidity. In reviewing historical 100 plus year weather data for the coldest weather locations in the US, this has occurred once in Havre, Montana, twice in Wisconsin and on less than 10 dates in Minnesota (These occurred primarily in Northern Minnesota, International Falls, Embarrass and Tower. This occurred one time in the weather records for Minneapolis). Twenty years ago this product survival test certainly contributed to improving the reliability of H/ERV products. Today with significant product in the field for over 20 years, reliability is certainly improved across all manufacturers. The reliability of HRVs defrost are an active reliability that relies on a control and damper cycling thousands of cycles a year. If the active defrost fails, due to unbalanced airflows or mechanical failure, liquid water in the core will freeze, expanding and potentially causing damage to the HRV core. ERVs seldom if ever will condense or frost because of the simultaneous transfer of heat and humidity out of the exhaust air stream. This means ERVs provide full ventilation capacity at significantly colder temperatures than HRVs. If the saturation state occurs at all, it occurs below 32 F so there is no liquid water in the core to freeze, expand and damage the core. Low density frost formation will restrict air flow but this restriction is less than the required HRV ventilation capacity reduction. There is no active defrost system necessary in ERVs to break down and reduce reliability. Others can argue that this reliability is not documented but neither is the reliability of HRV active defrost systems. This arbitrary reliability standard should not be used to qualify ENERGY STAR products. The note says that CSA C656-05 is an analogous low temperature test but note that there are no product AHRI Certifications at any temperatures colder than plus 17 °F, not even for products sold in Canada. There is no other ENERGY STAR specification to require performance at this extreme of temperature and duration. ENERGY STAR should not allow itself to get in the middle of a disagreement and product differentiation between manufacturers and technologies. Concerning the use of the SRE energy performance metric as calculated at the end of a 72 hour test - as described above the conditions represented</p>	<p>Rationale for this test has been provided in previous comment tables and within a text box in the draft specification</p> <p>No evidence for this has been provided. On the contrary, there are numerous examples where ERV cores have been damaged in freeze related failures</p> <p>There is no other ENERGY STAR program for HRVs and ERVs</p>

		by the test virtually never occur. This metric does not represent the performance at any other temperature, temperatures where the units actually operate. The number is not an appropriate input for any energy model so it can not be used for calculating energy savings or economics. No one has brought forth any argument that there is any value for this metric. (Note that this is opposed to the TRE metric which is a reasonable representation of performance during residential air conditioning operation.)	
DS	Line 237 RenewAire does not support the proposed boundary line or any boundary line other than the administrative Canada/US border.	If the line is drawn unnecessarily south manufacturers must provide a defrost that passes -13F testing which reduces ventilation capacity, increases the size of the unit and increases energy consumption. If the line is drawn too far north, product reliability is risked. There are huge variations where manufacturers believe the line should be draw, most likely based on the performance characteristics of that manufacturer's product. Placing a restriction on qualification for the low temperature test in zones 6 and colder would cause our cost to the customer to rise, reduce our ventilation capacity and decrease our energy recovered. This is not serving the goals of ENERGY STAR or the homeowner. This only stifles competition, innovation, cost competitiveness and energy efficiency instead of encouraging these ENERGY STAR goals.	A defrost mechanism does not necessarily reduce ventilation capacity.  Not necessarily, especially if current products malfunction in cold weather
HVIN	Line 237	HVI did not support the proposed boundary line or any boundary line other than the administrative Canada/US border. There was a variety of opinions where members thought the proposed boundary line should go.	This is a moot point until Tier 2 takes effect. For Tier 1 the effective boundary line is the Canada/US border
DS	Line 246	While some members promoted the line where TRE would be required to be substantially north, a compromise was reached that if the northern line fell at the Canada/US boarder, this line would be acceptable. In the absence of a US standard and a line at the Canada/US border, the position of this line must be reviewed	This is confusing. Compromise by whom – where is this documented? Acceptable to who?
HVIN	Line 246	While some HVI members were in favor of the line where TRE would be required to be substantially north, a compromise was reached where if the northern line fell at the Canada/US border, this line would be acceptable. In the absence of a US standard and a line at the Canada/US border, the position of this line must be reviewed.	This is confusing. Compromise by whom – where is this documented? Acceptable to who?
DS	Line 257	Standards for the ones including the US must be worked out before an portion of the Specification is finalized so that all provisions are understood up front	Not correct
HVIN	Line 257	Standards for the zones including the US must be worked out before a portion of the specification is finalized so that all provisions are understood prior to program implementation.	Not correct
DS	Line 298 through 340	A program for Canada only is unacceptable. Labeling for Canada only is	Products being sold in both

		ineffective since all product is sold through both the US and Canada	countries does not make labelling for Canada ineffective
DS	Line 321 Line 323  Line 325	Should be Zone 3, Canada Should be Zone 2, The US except for the area in the southeast indicated by the line on the map. Should be Zone 1, The southeast US as indicated by the line on the map	This relates to Tier 2. There is time to fine tune the boundaries while EPA is evaluating potential US adoption of Tier 2.
DS	Lines 327-339 Delete as being unnecessary		Describes labelling that will be required for Tier 2. Not unnecessary
CS	General	While I'm disappointed that EPA has chosen to sit out the implementation of Tier 1 of the standard, given the less-than-rigorous level of the Tier 1 specifications, I see very little to be lost in the way of energy savings by waiting until the slightly more rigorous Tier 2 arrives. It is definitely true that the U.S. market for HRVs and ERVs is very poorly developed at this point, and not particularly well supported by the current manufacturers in a way that would result in more common use of these increasingly important products. My own substantial experience with builders and HVAC contractors tells me that very few of them understand the need for ventilation, much less the basic principles of how to design a system and adequately specify the equipment. Virtually none know anything about the metrics used to describe the performance of the units (other than supply air flow) or about the amount of energy they use in operation. Nor do they know how to advise their clients on how to operate their systems. Much work needs to be done to bring the residential building trades in the U.S. up to speed on these systems before one could expect an ENERGY STAR specification to be of much use. Poorly installed and utilized, even an ENERGY STAR product will not deliver its advertised savings or benefits	Tier 1 eliminates over 70% of current base models so it is difficult to accept the reference to less than rigorous level of the Tier 1 specification.  Agreed, and relates to many product categories.
CS	Fan Efficacy Requirements.	As pointed out in the note on this requirement, there is a wide range of energy use across all of the HRV and ERV models for which I have data. I discovered this as I developed energy savings estimates for Oregon's HRV and ERV tax credits. My analysis showed that a number of models would use more energy than they recovered each year, while others would use substantially less electricity and provide a net energy savings benefit in addition to fresh air. My more recent analyses have confirmed the importance of this metric. In fact, when heating (or cooling, for that matter) for the home is provided by a high efficiency heat pump system (COP 3), very few HRVs or ERVs can provide a net annual energy benefit while providing the ventilation function. While this is not a requirement (fresh air in a very air-tight home is of great benefit inherently), it is a testament to the best products that can do this at a net annual energy savings.	OK

		The minimum fan efficacy specifications proposed are appropriate (for Oregon, I had specified two levels of efficiency - 0.67 cfm/watt and 1.3 cfm/watt, not so different than what is proposed here). I strongly support the use of fan efficacy specifications for this standard.	
CS	Minimum SRE Requirements.	Having spent many, many hours poring over performance data for the various HRV and ERV models now on the market, I know that the draft Tier 1 minimum SRE requirements are representative of the performance of a lot of models. And that the models that fall short of this level of performance do not fall short by very much. Which suggests to me that the Tier 1 requirements will do not much more than minimize the sales of the few worst-performing models. This is more a function of minimum energy efficiency standards - not a basis for rewarding the most exemplary products. There are at least two downsides to an insufficiently rigorous standard. First, there will be very little in the way of energy savings associated with this Tier of the program. Since we don't have any sales-weighted efficiency data to examine, it's not possible to estimate savings. Second, it will be impossible (without a third tier) to differentiate the truly exemplary products with regard to efficiency - those with SRE performance better than 75 percent. In fact, I strongly suggest that when ENERGY STAR implements a specification at the Tier 2 level later, that they also establish a Tier 3 specification to accomplish this. In the absence of a tier at the SRE 75 percent level, I would not be supportive of the specification. Overall, I find the minimum SRE specifications lackluster, and not particularly effective for promoting the most efficient products. My recommendation would be to use the SRE values proposed for Tier 2 as Tier 1 specifications, and setting Tier 2 heating specifications at 75 percent at 32°F/0°C and 67 percent at -13°F/-25°C. The "neutral" and "cooling" specifications might be set somewhat lower later (say 70 percent and 65 percent, respectively), but for now, the Tier 1 and Tier 2 heating specifications need to be set at a level that will allow buyers to select products that will provide good ventilation performance for a building at a reasonable annual cost in energy consumption. The current specifications do not do this. The need for fresh air in tight homes is critical, and our need to be able to save significant amounts of energy in the process is now imperative. Climate change is real and a real threat. This industry should step to the plate - now, not years from now – and do its part.	Tier 1 passes less than 30% of base models that are currently available with certified performance ratings.  Developing a Tier 3 requirement could be considered during the 21/2 years that Tier 1 is in effect.
CS	QA, Installation Instructions, Consumer Information	In general I support these parts of the specification. There is a second important reason for insulation on the fresh air supply duct to the HRV/ERV, and this is the prevention of condensation on the duct. A failure to consider	OK

		<p>this can lead to mold and mildew issues, depending on the location and degree of confinement of the duct. While I think the consumer information provided is good practice, most often consumers won't be the ones using it. Most installation issues will be addressed by contractors installing the systems. And the most important need in the industry right now is contractor education. My own recent experiences (in providing high performance building workshops) suggests that there is a disconcerting lack of understanding of these systems and how to properly design and install them. So while I wouldn't discourage the provision of consumer information, I doubt it will do much of the work required in this area</p>	
CS	Product testing and certification.	<p>This section of version 3.0 of the specification is quite different than that in version 2.0, but it's little improved, and perhaps worse because it's misleading.</p> <p>Clearly testing in accordance with the provisions of C439 is required. But routine verification and challenge testing on a regular and periodic basis strikes me as overkill for this product. The only such program for related equipment that I know of is that operated for AHRI by ETL. Only AHRI members can participate in that program. To suggest that requiring the participation in a third-party verification and challenge testing program is required, but that being a member of the certification organization is not required is disingenuous. Much of the cost of membership in such organizations goes toward paying for the maintenance and operation of the verification and certification program, exclusive of the direct costs charged to members for the testing of their equipment. For some manufacturers, generally the largest ones, this cost is more easily amortized over the cost of their products, especially where multiple product lines are involved and costs such as administrative expenses can be spread over multiple business lines.</p> <p>For smaller manufacturers, this requirement is a significant burden. It will no doubt add to the cost of a product that is probably already more expensive than those made by large manufacturers or sellers (those who simply brand product made by others), because of production volume advantages if nothing else. Across the entire industry, it will add cost to a product that is already difficult to sell, in part because of its cost. This process is put forward to solve a "problem" that may or may not exist. In other parts of the residential appliance and system world, challenge testing only occurs when there is reason to doubt that a product meets its listed performance specifications. This is the way the California Energy Commission handles challenges to ratings of listed products there. If a challenged product fails its testing at a third-party lab (two failures with randomly sampled units is</p>	<p>Not misleading. Wording has been added so that HVI certification is not the only process available to a manufacturer to obtain ENERGY STAR recognition for H/ERVs. Note that this was also done in the final specification for residential ventilating fans.</p>

		<p>deemed a general failure), the challenged manufacturer pays the testing costs and de-lists or re-lists the product. If it passes, the Commission pays for the testing.</p> <p>So the current verification and challenge testing proposal opens the door for significant added product costs while purporting to solve a problem that may or may not exist. In addition, in attempting to solve the “problem” it proposes to do so in a manner that is probably the most expensive way possible. Several of the residential appliances covered by the ENERGY STAR program are equally complex and involve highly technical test methods (clothes washers come to mind), and yet are not subject to a routine challenge testing program.</p> <p>I highly recommend that NRCan and ENERGY STAR fully document the problem being solved here and fully explore other options for solving it, if found, before imposing such an onerous requirement on a product that is already challenged by cost and related market barriers. If I were a small and innovative manufacturer, or a manufacturer of high performance products, I can’t imagine why I would participate in the program. This would be especially true if there were alternative programs that did not impose such requirements. While I can certainly appreciate that this requirement would much improve the cash flow position of the certifying organizations, I believe it would be highly detrimental to the industry as a whole. In the absence of an expensive and complex routine verification and certification program, there is but a requirement for laboratory accreditation in this section. This is good practice in general, and I certainly support a process for ensuring that the labs doing the testing for everyone are properly equipped and capable of providing highly reliable and repeatable testing results. I endorse this section of the specification.</p>	<p>The minimum efficiencies of many of those appliances, including the example cited (clothes washers) are regulated in both the US and Canada. As a result those product categories are already subject to sampling and performance verification testing in both countries.</p> <p>H/ERVs are not currently regulated products.</p>
CS	Conclusions	<p>On the whole, I can’t imagine using or recommending the ENERGY STAR specification as currently proposed for two reasons:</p> <ol style="list-style-type: none"> <li>1) The SRE performance specifications are not sufficiently stringent. Even the products meeting the Tier 2 specification at the lower end of the range (below 75% SRE) will very seldom provide their ventilation air function without a serious energy cost to the homeowner. Only in the cases where home heating or cooling is provided very, very efficiently (as with a very efficient heat pump - HSPF 9.5 or better) will the energy load imposed by these products be acceptable on an annual cost basis.</li> <li>2) The currently proposed verification and challenge testing procedure is detrimental to the success of both the evolution of the technology and the program itself. I’m fully aware of more cost-effective ways to address any product performance failure problem that might be found to exist. To the</li> </ol>	<p>Tier 2 specification requirements for the heating zone are satisfied by only about ten percent of current products. It is anticipated that the low qualification rate for existing product will lead to market deployment of significantly improved HRVs and ERVs.</p>

		<p>extent that there are other incentive or co-marketing programs that exist in the marketplace for these systems, participation in the ENERGY STAR program will be considered optional. There is already some resistance on the part of utilities and others to enter into the indoor air quality arena with their programs (very few program operators want to be in the position of warranting a home's indoor air quality, explicitly or implied). Adding to the cost of the systems unnecessarily is entirely unhelpful at this point. Since I am routinely involved in the development of such other programs (utility energy efficiency programs, state-level incentive programs and green building programs), I should state that at this time, I would not recommend the use of the ENERGY STAR specification as the basis for such programs. With a more stringent SRE requirement and a more cost-effective way to assure product performance, I would reconsider.</p>	
KA	General	<p>We would like to express concern with EPA's decision to postpone U.S. eligibility under this proposed specification. Postponing a U.S. launch could put U.S. manufactures at a competitive disadvantage. Most residential H/ERVs are sold in both markets and with the same packaging. Restricting the program to Canada only could imply to homeowners in the U.S. that a Canadian ENERGY STAR H/ERV unit is a better choice than a non ENERGY STAR unit sold in the U.S. only. We urge EPA to reconsider its decision. If EPA needs more time to analyze the U.S. market, then EPA should delay the launch of the Canadian program until the time an ENERGY STAR program could start in both countries simultaneously.</p>	<p>US manufacturers are not prevented from qualifying their products to the Tier 1 heating zone spec and so labelling if they feel that not doing so puts them at a competitive disadvantage</p> <p>This would unnecessarily further delay or prevent program implementation in Canada</p>

CS	Charles Stevens	Adjuvant Consulting
DF	Daniel Forest	Venmar Ventilation
DS	Doug Steege	Renewaire
EO	Eion O'Connor	NuAir Ventilation
HVIN	Jackie Golicke	HVI - comments on areas without consensus
JB	Jim Boldt	Broan-Nutone
HVI	Jackie Golicke	HVI - comments on areas of full consensus
KA	Karim Amrane	AHRI (received one week after comment period had closed)

