Energy Program
WASHINGTON STATE UNIVERSITY

Washington State University Energy Program
proudly presents:

HSPF2
An industry update.

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Archival Profile Data

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An industry Update…

Testing/Reporting procedures for HVAC equipment is changing!

- As of January 1st there is a new standard for the way heat pumps have to be tested and labeled.
- The new standard will be reported in HSPF2, COP2, SEER2, and EER2.
- All new equipment as of January 1st must be reported in the new efficiencies.

What do those things mean?

Coefficient of Performance (COP)

Heating Seasonal Performance Factor (HSPF)

Seasonal Energy Efficiency Ratio (SEER)

Energy Efficiency Ratio (EER)

Cliffs Notes

- Coefficient of Performance (COP)

  A snap shot in time of efficiency at a specific temperature.

- Heating Seasonal Performance Factor (HSPF)

  Seasonal heating efficiency

- Seasonal Energy Efficiency Ratio (SEER)

  Seasonal cooling efficiency

- Energy Efficiency Ratio (EER)

  Enough, for one day of training…

EER

- The Energy Efficiency Ratio of an HVAC cooling device is the ratio of output cooling energy (in BTU) to input electrical energy (in watts) at a given operating point

SEER2 website by Johnstone

- https://seer2.com/region-north.html

What do we do with the old heat pumps?

- Existing 14.0 SEER heat pumps built prior to January 1, 2023,
  - may still be sold and installed on or after January 1, 2023.

"These are not the heat pumps you are looking for"…

AHRI

These results will have to be reported on the equipment in the same way as before with a region specification.

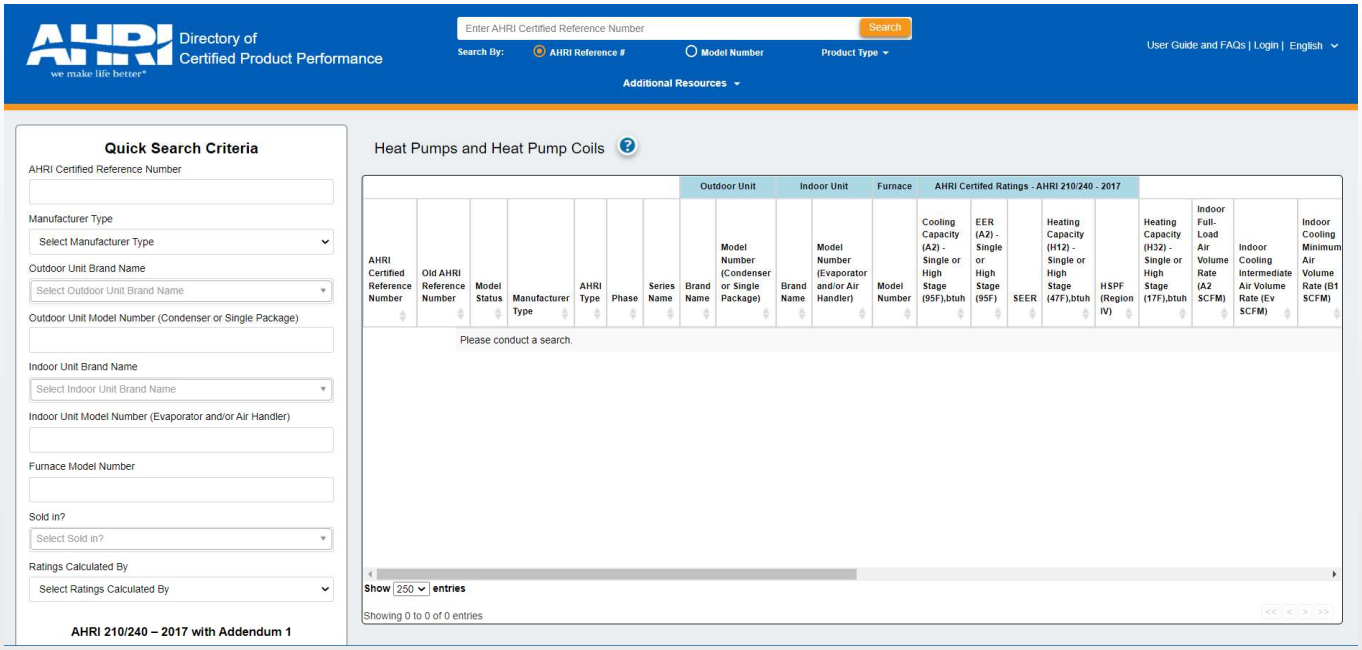
You can also find them on AHRI.

AHRI Certification Directory (ahridirectory.org)

AHRI has a beta site for HSPF2.

SEER/HSPF App (ahrianalytics.org)

What does an AHRI look like?



An Example of an AHRI Certificate

Eligible for Federal Tax Credit

AHRI CERTIFIED®
www.ahridirectory.org

Certificate of Product Ratings

AHRI Certified Reference Number : 5319466 Date : 09-08-2022 Model Status : Active

AHRI Type : HSP-A (Single-Package Heat Pump Air-Source)

Outdoor Unit Brand Name : DAIKIN

Outdoor Unit Model Number (Condenser or Single Package) : DPS005AHHY***-4

The manufacturer of this DAIKIN product is responsible for the rating of this system combination.

Rated as follows in accordance with the latest edition of AHRI 210/240 - 2017 with Addendum 1, Performance Rating of Unitary Air-Conditioning & Air-Source Heat Pump Equipment and subject to rating accuracy by AHRI-sponsored, independent, third party testing.

Cooling Capacity (A2) - Single or High Stage (95F), btuh : 56000

SEER : 18.05

EER (A2) - Single or High Stage (95F) : 12.65

Heating Capacity (H12) - Single or High Stage (47F) : 51000

HSPF (Region IV) : 9.80

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†"Active" Model Status are those that an AHRI Certification Program Participant is currently producing AND selling or offering for sale; OR new models that are being marketed but are not yet being produced."Production Stopped" Model Status are those that an AHRI Certification Program Participant is no longer producing BUT is still selling or offering for sale.

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Air-Source Heat Pump Equipment and subject to rating accuracy by AHRI-s

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EER (A2) - Single or High Stage (95F) : 12.65

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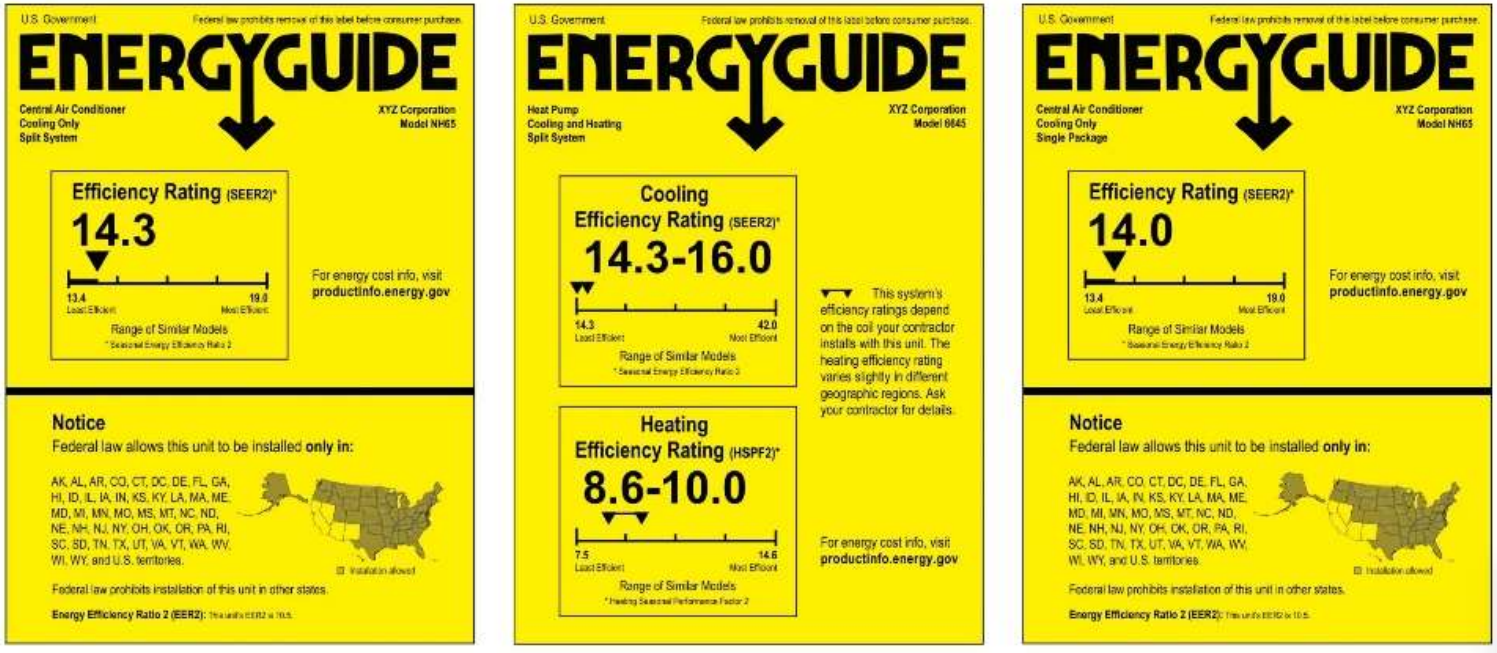
An Energy Guide Label Example



So what's the big deal?

- Well in an ideal situation this is not a big deal at all. It is a new refrigerant that has caused the industry to change testing standards for heat pumps.

- This cause a small increase in the national federal minimum equipment form HSPf1 of 8.2 to HSPF1 8.8

So why is Washington worried?

- The industry's new testing procedures are not apples to apples.
- 406.3 has a couple different efficiencies that need HSPF2 benchmarks.
- In order for distributors to order equipment they need a conversion or crosswalk.

So what now?

- Washington State is in the process of proposing a crosswalk for 2018 codes.
- This, if adopted, will have a crosswalk chart that is usable for the WSEC-R 2018.
- The crosswalk proposed was established on the Daikin's guidance and several industry folks have been supporting this crosswalk.

The crosswalk proposed.

SEER	Ducted SEER2	Ductless SEER2
14.0	13.4	14.0
14.5	13.8	14.5
15.0	14.3	15.0
15.5	14.8	15.5
16.0	15.2	16.0
17.0	16.2	17.0
17.5	16.7	17.5
18.0	17.2	18.0
19.0	18.1	19.0
20.0	19.0	20.0

EER	Ducted EER2	Ductless EER2
10.2	9.8	10.2
11.0	10.5	11.0
11.5	11.0	11.5
11.7	11.2	11.7
12.0	11.5	12.0
12.2	11.5	12.2
12.5	12.0	12.5
13.0	12.5	13.0

HSPF	Ducted Split HSPF2	Ducted Package HSPF2	Ductless HSPF2
8.0	6.8	6.7	7.7
8.2	7.0	6.9	7.9
8.8	7.5	7.4	8.4
9.0	7.7	7.6	8.6
9.5	8.1	8.0	9.1
10.0	8.5	8.4	9.5
11.0	9.4	9.2	10.4

NOTE: The cross references for efficiency in the above tables should be noted as approximate.

Ok but what about the WSEC-R 2021 cycle?

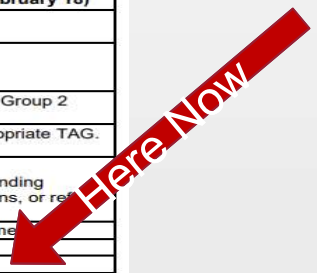
- We are hoping an official conversion or crosswalk is approved before the new code goes into effect.

- As the deadline approaches we are aware that a similar proposal will be asked of the SBCC until a more official permanent solution is available.

Process and Timelines

2021/2022 Code Review and Adoption Schedule

Revised 1/24/22	Group 1 IBC, IFC, WSEC-Commercial, WUI	Group 2 IBC/IEBC, IRC, WSEC-Residential, UPC, IMC, WUI
January 2021	2021 model codes available	
February and March 2021	TAGs review 2021 significant changes to model codes & existing state amendments. TAG reports show recommendations to maintain or delete existing state amendments and flag changes to model codes needing further review.	
March 19, 2021 Council meeting	Council approves TAG reports and establishes a submission period for new statewide amendments.	
April 1- June 1	Submission period for proposed state amendments	
May 21; June 17 Council meetings	Council can accept proposals and refer them to the appropriate TAG, deny proposals, or take other actions.	
May through August 2021	TAGs review proposals and make recommendations to Council.	
September 17 Council meeting	Council accepts TAG and standing committee recommendations, overturn recommendations, or refer proposals back to TAG.	
October 2021	Preparing CR-102 with code proposals and APA documents.	
November 2021	Preparing CR-102 with code proposals and APA documents.	
December 2021	Preparing CR-102 with code proposals and APA documents.	
January 2022	File CR102 by 01/05/2022 **(Council meeting on January 21)**	TAGs review 2021 significant changes to model codes & existing state amendments and prepare reports. Council approves TAG reports and establishes a submission period for new statewide amendments. **(Council meeting; February 18)**
February 2022	Public hearing/ written testimony for Group 1 **(February 11 & February 25)**	
January 19 – March 11, 2022	Public comment period for Group 1	
March 2022	Public hearing/ written testimony for Group 1 **(March 11)** Council work session/action taken on Group 1 code proposals **(Council meeting, March 18)**	
February 21 – April 8, 2022		Submission period for proposed state amendments for Group 2
April 2022	Council action on Group 1 codes **(Council meeting, April 22)**	Council accepts proposals and refers them to the appropriate TAG. **(Council meeting, April 22)**
May 2022		TAGs review proposed state amendments and make recommendations to Council. Council accepts TAG/standing committee recommendations, overturn recommendations, or re proposals back to TAG. **(Council meeting, June 17)**
June 2022		
July 2022		Preparing CR-102 with code proposals and APA docume
August 2022		File CR102
September 2022		Public Hearings/ written testimony on Group 2 codes
October 2022		Public Hearings/ written testimony on Group 2 codes Council work session on Group 2 **(Council meeting, Oct. 21)**
November 2022		Final Council action, adoption of Group 1 and Group 2 codes. (Council meeting Nov. 18) All actions must be taken by Dec. 1



Thank you, everyone!

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