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Revisions to CEE Unitary AC and HP Specification



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CEE High Efficiency Commercial Air-Conditioning (HECAC) Initiative launched in 1993.

Goal:

- To encourage the proper installation and widespread use of high-efficiency air conditioners and heat pumps in commercial buildings.

Program Components:

- Unitary AC and HP Specification
- HVAC Quality Installation Guidelines (March 2001)

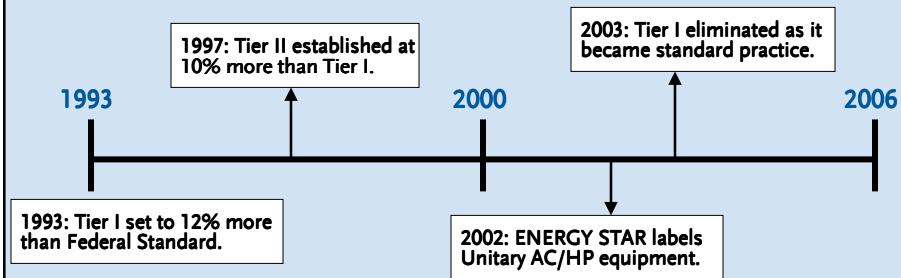
Participation:

- Today, 32 CEE Members are promoting the HECAC Initiative.



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CEE Unitary AC and HP tiers have evolved since Initiative launch.



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EPACT 2005 identifies Unitary AC and HP standards similar to CEE Tier II.

For units < 65,000 Btu/h

- Split and Packaged Systems:
 - 13 SEER (Seasonal Energy Efficiency Ratio)
 - 7.7 HSPF (Heating Seasonal Performance Factor)
- Effective on January 23, 2008

For units \geq 65,000 Btu/h

- Unitary AC levels similar to current CEE Tier II
- Effective on January 1, 2010



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Comparison of small commercial tiers with Residential tiers.

Category (Btu/h)	Unitary AC Levels			Unitary HP Levels		
	CEE Com. Current Tier	CEE Res. Tier 1	CEE Res. Tier 2	CEE Com. Current Tier	CEE Res. Tier 1	CEE Res. Tier 2
Split	13 SEER 11.6 EER	14 SEER 12 EER	15 SEER 12.5 EER	8.0 HSPF	8.5 HSPF	8.5 HSPF
Packaged	13 SEER 11.3 EER	14 SEER 11 EER	14 SEER 12 EER	7.5 HSPF	8.0 HSPF	8.0 HSPF



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Comparison of Unitary AC and HP efficiency levels $\geq 65,000$ Btu/h.

Category (Btu/h)	Unitary AC (EER Values)				Unitary HP (EER and COP@47°F)			
	Current ASHRAE	ENERGY STAR	CEE Tier 2	2010 Federal	Current ASHRAE	ENERGY STAR	CEE Tier 2	2010 Federal
$\geq 65,000$ and $< 135,000$	10.3/10.1	11	11	11.2/11	11/10.8 3.3	10.1 3.2	11 3.4	11/10.8 3.3
$\geq 135,000$ and $< 240,000$	9.7/9.5	10.8	10.8	11/10.8	10.6/10.4 3.2	9.3 3.1	10.8 3.3	10.6/10.4 3.2
$\geq 240,000$ and $< 760,000$	9.5/9.3	N/A	10	10/9.8	9.5/9.3 3.2	N/A	10 3.3	9.5/9.3 3.2
$\geq 760,000$	9.2/9.0	N/A	N/A	9.7/9.5	N/A	N/A	N/A	9.5/9.3 3.2



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Proposed Unitary AC Specification

Category (Btu/h)		UNITARY AC EQUIPMENT		
		CEE Tier I (Current Tier II)	CEE Tier II	CEE Tier III
< 65,000	Split	13 SEER 11.6 EER	14 SEER 12 EER	15 SEER 12.5 EER
	Packaged	13 SEER 11.3 EER	14 SEER 11.6 EER	15 SEER 12 EER
≥65,000 and <135,000		11.0 EER 11.4 IPLV	11.5 EER 11.9 IPLV	12.0 EER 12.4 IPLV
≥135,000 and <240,000		10.8 EER 11.2 IPLV	11.5 EER 11.9 IPLV	12.0 EER 12.4 IPLV
≥240,000 and <760,000		10.0 EER 10.4 IPLV	10.0 EER 12.0 IPLV	10.5 EER 12.0 IPLV
≥760,000		9.7 EER 10.1 IPLV	9.7 EER 11.0 IPLV	10.2 EER 11.0 IPLV



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Proposed Unitary HP Specification

Category (Btu/h)		UNITARY HP EQUIPMENT		
		CEE Tier I (Current Tier)	CEE Tier II	CEE Tier III
< 65,000	Split	8.0 HSPF	8.5 HSPF	9.0 HSPF
	Packaged	7.5 HSPF	8.0 HSPF	8.5 HSPF
≥65,000 and <135,000		3.4 COP 2.4 COP	N/A	N/A
≥135,000		3.2 COP 2.1 COP	N/A	N/A



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Specific comments from Air-Conditioning and Refrigeration Institute (ARI)

- For Tier 1, change to 11.3 EER for splits and 11.0 EER for packaged to double the number of products.
- Change Tier 2 to 11.5 EER and 8.2 HSPF for split units. For packaged, change to 11.0 EER to be consistent with residential.
- For Tier 3, adjust the HSPF to 8.5 for splits. For package systems, SEER should be 14, EER 12 and HSPF 8.0.
- For units >65k, IPLVs should be adjusted to 0.2 to 0.4 above EER values. 1 or 2 points above EER is not achievable with common blower technologies.



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General comments from Air-Conditioning and Refrigeration Institute (ARI)

- Align small commercial equipment with CEE residential levels.
- Establish two EER values, similar to ASHRAE to distinguish between an electrical or gas heating section type.
- Work with industry to identify ways to use Integrated Partial Load Value (IPLV) for large unitary equipment (>740,000 Btu/h).
- Water and evaporatively cooled HVAC systems should not have the same EER values across all size categories. EER should decrease as the cooling capacity increases.



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Committee will focus on finalizing the specification by the end of 2006.

1	Preliminary specification provided to industry	April 6, 2006
2	Feedback received from industry.	May 25, 2006
3	Consideration of all comments/feedback from committee and industry	Aug/Sept. 2006
4	Draft final specification based upon industry comments.	Oct 2006
5	Present to CEE Board for approval as a voluntary national specification	Nov/Dec 2006



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