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Changing Codes Relationship Between IECC and HERS and the Impact on ENERGY STAR

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- 1. Correlation Between HERS and Code?
- 2. Differences in Reference Home Characteristics
- 3. Differences in Methodologies
- 4. Impacts of Changing Codes on ENERGY STAR



















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CF Reference Home Differences



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	HERS Reference Home	IECC Reference Home	Impact
Distribution efficiency	Always 80%	Depends on presence and location of ducts	Disparity in homes without ducts, e.g. hydronic heating w/o A/C
Window area	18% of floor area, adjusted for wall area above grade	18% of floor area	Disparity in homes with conditioned floor area bounded by walls below grade, e.g., conditioned basements
Wall/ window/ door U-value	1993 MEC, single overall value for three components	Separate tabular values for walls, windows.	Disparity varies depending on ratio of wall area to conditioned floor area (see graph on following slide)
Solar heat gain coefficient	0.581 heating, 0.466 cooling	< 3500 HDD: 0.360 htg, 0.280 clg >= 3500 HDD: 0.612 htg, 0.476 clg	Significant disparity in warm climates
Electric heating	Always an air-source heat pump	Same as design	Large disparity when design has electric resistance heat.





Methodology Differences



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IECC HERS Impact No A/C in homes w/o Cooling Reference level A/C The additional space added for homes w/o load can increase **Systems** cooling decrease HERS score cooling depending on shell Values Normalized, modified Total site energy in Btu Divergence when end-use loads higher efficiency Compared equipment is in design. (nMEUL) for heating, cooling, hot water Fuel type affects two methods differently







- Correlation between HERS and code No easy answer!
- ENERGY STAR relies on two metrics:
 - *⊯* >/= HERS 86
 - ✓ Significantly better than state code
- So how does ENERGY STAR address this discrepancy?
 - ∠ Benchmark state energy code
 - **Work with stakeholders to define a threshold that is:**
 - Meaningful and achievable
 - ∠ Easy to understand
 - Applicable to entire state
 - Consistent with national requirements
 - Z Determine grandfather period to usher in new threshold





- CA and TX analyses completed
- Working on MN and Pacific NW (OR, MT, WA, ID)
- ENERGY STAR now redefined:

 - \measuredangle Still follow the process of:
 - ∠ Benchmark state energy code
 - Source Work with stakeholders
 - *∝* Determine grandfather period





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Questions / Discussion

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