

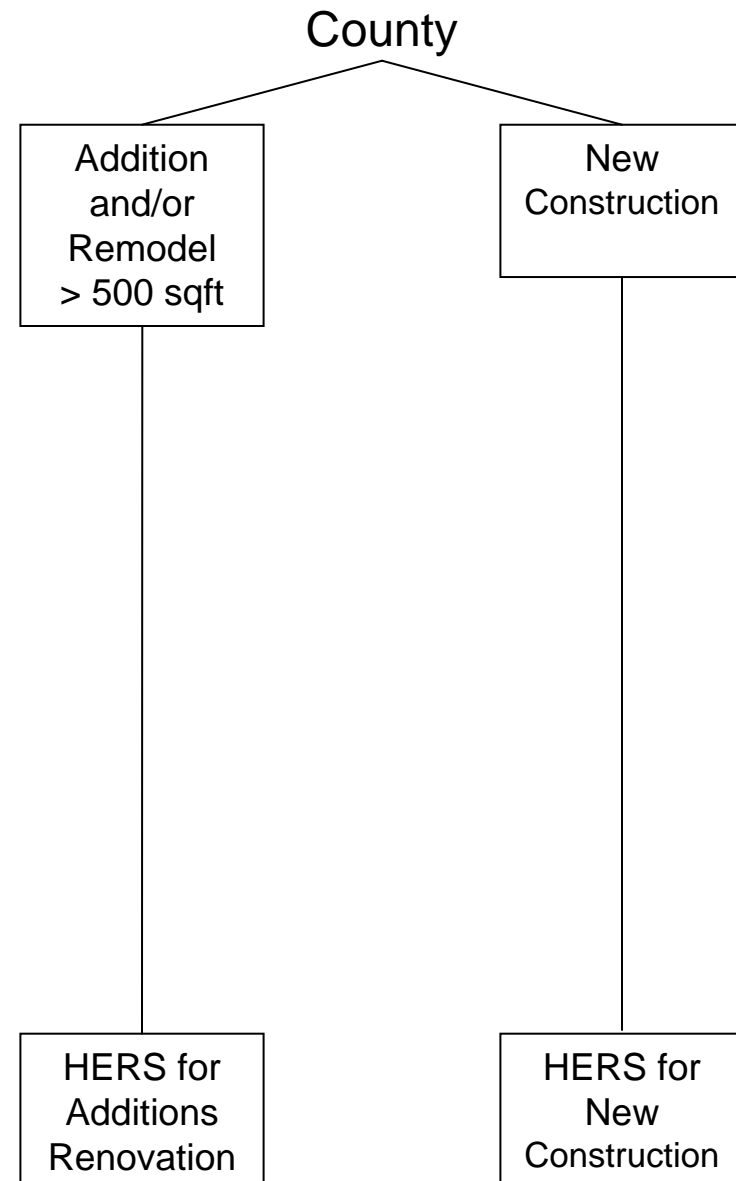
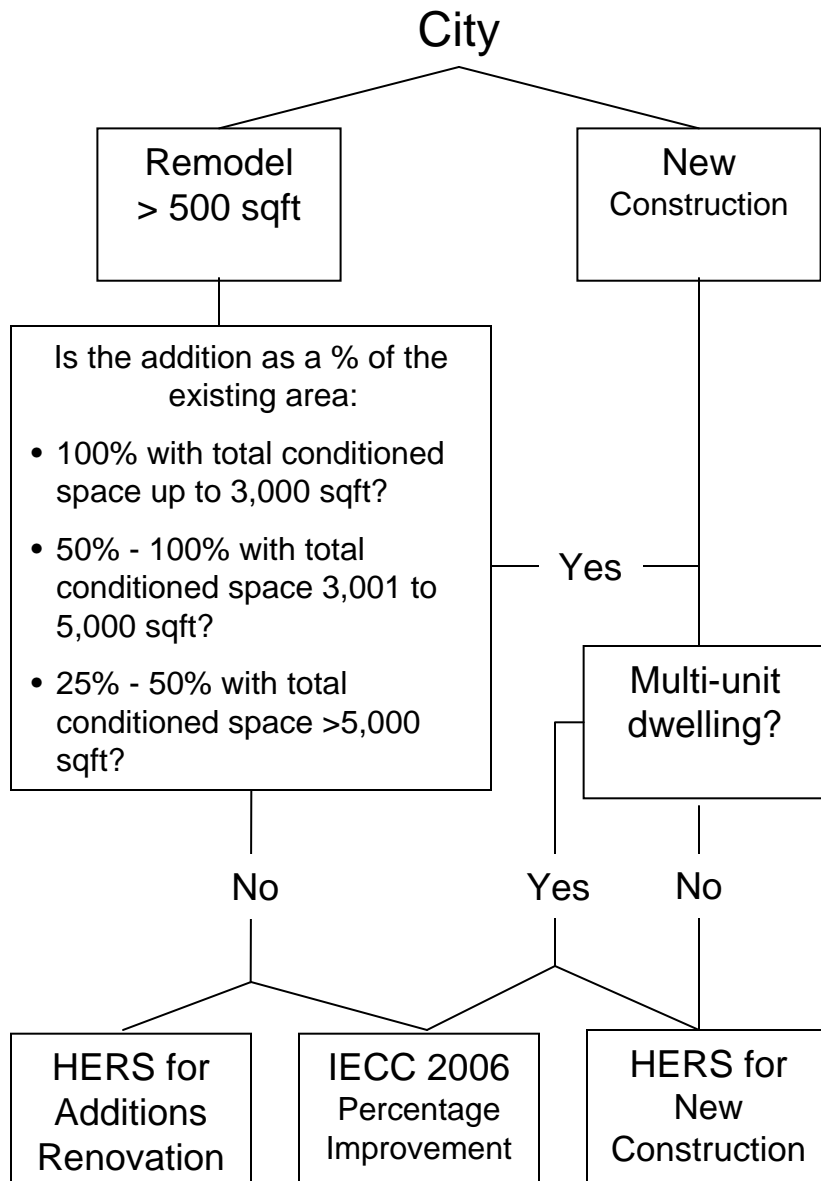


## R 3.3 (.3 U) Windows

Best “Bang” for the HERS “Buck”

Best Return on Energy Efficiency Investment

# Boulder City and County Building Codes



# Performance Paths and Windows

## Which Performance Path:

In almost all cases, it will be less expensive to contract with a HERS Rater as you gain the ability to trade off cost, aesthetics, and performance.

## HERS and Windows:

The more efficient the envelope and/or mechanical equipment, the less impact on HERS windows make

- Normal glazing to floor area ratio is about 18%; limiting the impact improvements make
- Air sealing and increased equipment efficiency have far greater impact

While the cost difference is great, the range of R Values (inverse of U Values) is small (R 3.33 – R 5) making the impact of the change small as compared to what you can do to walls, ceilings, and floors

- Renewable energy systems often provide greater impact on the HERS Index score for less money

Translated to HERS Scores, improving window R Value will, on average, earn 1 – 5 HERS points

Translated to utility bill difference, using R 3.33 as opposed to R 5 windows will add approximately \$2 per year per 3' x 5' window in increased heating costs, making simple payback decades long (see appendix)

## Exceptions:

High amounts of windows, especially when concentrated on the north elevation

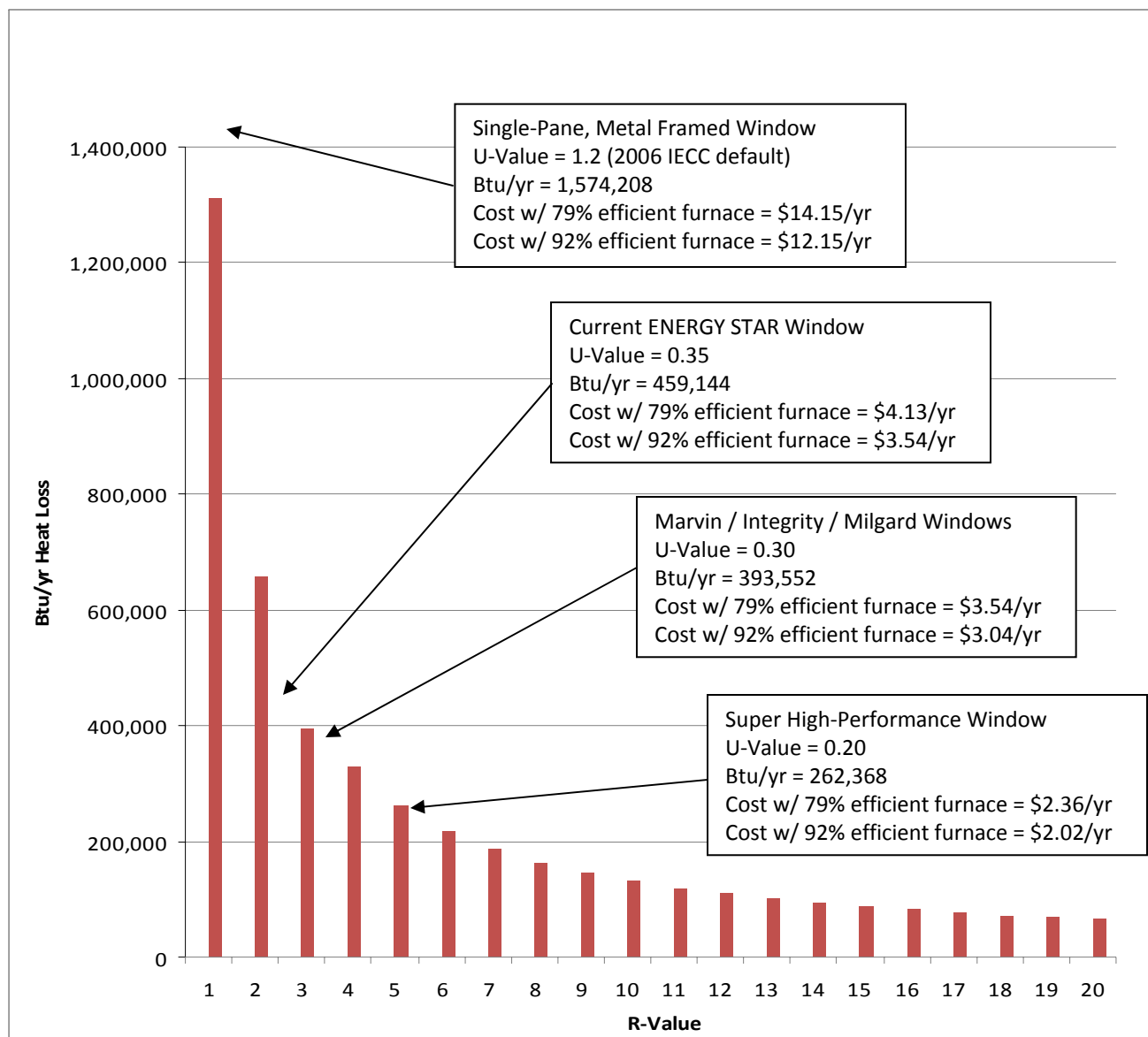
Performing work on a small percentage of the building area on a poorly constructed home (i.e., if improving only 10% of an existing building that is ½ as efficient as a code house it could be difficult to bring the other 90% into HERS compliance)

# SolarGlass Guaranty

Give SolarGlass a chance to prove that R 3.33 (U .3) windows work within the performance requirements of the project

If SolarGlass is unable to prove it, we will pay up to \$1,000 of the HERS-related expenses

# Appendix: Heat Loss in Btu/yr for 10 sqft. of Area at Various R-Values in Boulder, CO\*



\*This chart accounts only for heating season losses. The chart does not account for losses attributable to air infiltration associated with windows, nor does it account for passive solar gains by windows that could reduce heating demand in winter, but also increase cooling demand in summer. Finally, energy costs associated with each window are based on Xcel Energy's average natural gas prices for the 2nd quarter of 2009 (\$0.71 / therm). These costs do not include additional fees, etc. charged by Xcel.