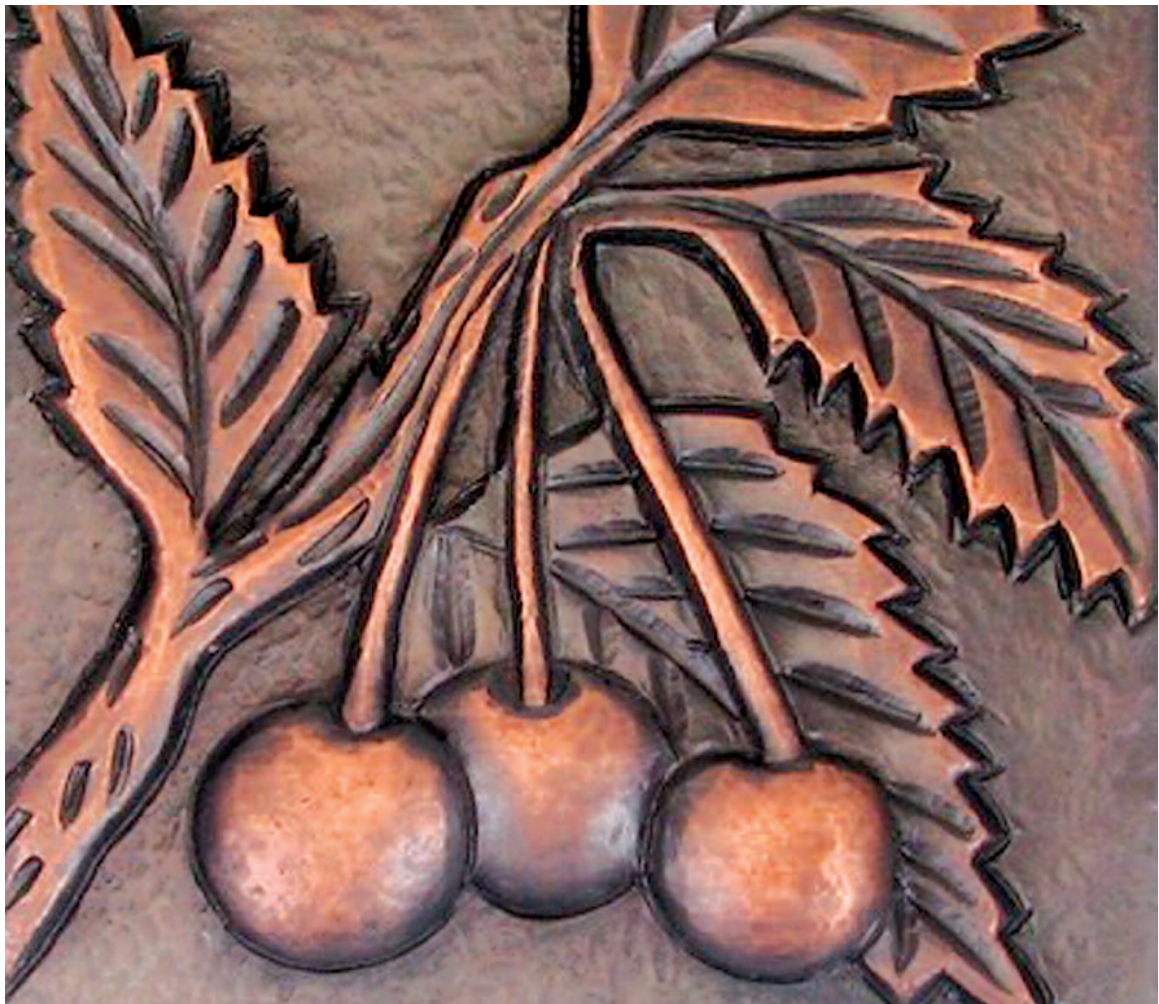


Copper In-Use Stock and Copper Scrap in the State of Connecticut, USA

Jason Rauch, Matthew Eckelman, and Robert Gordon



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ABSTRACT

During the summer of 2006, the standing in-use stocks and associated discards of copper, centered about the year 2000, were quantified for the State of Connecticut. The methodology, results, and discussion are published here in three parts:

Part A. In-Use Stocks of Copper in the State of Connecticut

Part B. Discard Flows from In-Use Stocks of Copper in the State of Connecticut

Part C. Recycling Rate of Old Scrap Copper in the State of Connecticut

Among the most important and interesting results are as follows:

1) A “bottom-up” assessment of the in-use stocks of copper in the State of Connecticut, circa 2000, yields an overall result of approximately 540 Gg (thousand metric tons) of copper, or 157 kg for every person in the State. Buildings make up the largest category with 53% of the total, with residential buildings as the largest sub-category.

2) The discard flows of copper from in-use stocks were quantified by applying a lifetime analysis to the in-use stock estimates of copper in Connecticut. A total copper mass of 17 Gg/yr (thousand metric tons per year), or 5.1 kg/(capita*year), was discarded from in-use stocks at the beginning of the 21st century. Renovation and demolition debris make up the largest category with 36% of the total, followed by waste from electronic and electrical equipment (26%), transportation (23%), and infrastructure (14%).

3) The recovery rate, recycling efficiency, and recycling rate for copper from in-use stock discards were quantified for the State of Connecticut for the year 2000. With a recovery rate of 84%, and recycling efficiency of 75%, the overall recycling rate was found to be 63%. Neglecting sewage sludge, the lowest recycling rate occurred in end-of-life vehicles and waste from electronic and electrical equipment (45%). A rough estimate combining this old scrap recycling rate with that of new scrap puts the overall recycling rate of copper in Connecticut at approximately 70%.

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We would like to acknowledge the Copper Development Association for providing funding for this research. We also thank the people of Connecticut for the valuable information they were able to provide in response to our interviews and inquiries.

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