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[Back to Publications List](#)

Consumer Willingness to Pay for Renewable Building Materials: An Experimental Choice Analysis and Survey

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Executive Summary

In recent years, growing consumer awareness of the environmental effects of the products they purchase has resulted in a demonstrated change in buying behavior. The tremendous rise of the organic food industry illustrates the desire and willingness by consumers to pay a price premium for food products that meet certain environmental standards. The emergence of forest eco-certification standards demonstrates that greater market share will go to companies that can demonstrate higher levels of environmental sustainability. Other developments, like carbon-trading programs and green energy programs further demonstrate this shift. Over the past decade, greater attention has also been paid to the environmental effects of building products industries.

Understanding public attitudes toward building materials and their related environmental performance is important as it can provide consumers with the product attribute information they seek. Product attribute information has important policy implications for programs that may help achieve certain environmental standards. This study uses a choice-based, stated preference approach and relies on basic consumer demand theory. Using a mail survey, respondents were asked to assess a set of goods with different levels of emissions and price attributes; they were then asked to choose their most preferred alternative. Various price and environmental levels were included in the choice sets. Surveys were sent to two different populations. The first sample came from the general population; the second came specifically from real estate agents in the western states.

The results of the general population survey demonstrated that respondents were most sensitive to reductions in greenhouse gas emissions and were willing to pay for up to eleven tons of reduction associated with building a new house. Considering a typical house produces twenty tons of such gases during the construction process, this assessment is significant. They were also willing to pay for reductions in air pollution and solid wastes, although less than they were for reductions in greenhouse gas emissions. The water pollution variable was not significant enough in this study to estimate a willingness to pay. The responses from real estate agents appear to be much more willing to pay for reductions in solid waste emissions than for reductions in the other environmental attributes.

Results: Total WTP and Amount Reductions by Pollution Type for Each Survey

Environmental Variable Total WTP and Amount of Reduction	Air Pollution	Solid Waste Emissions	Greenhouse Gas Emissions
General Mail Survey Respondents	\$106.25 for up to 18%	\$95.50 for up to 18%	\$168.09 for up to 11 tons
Real Estate Agents	\$110.90 for up to 21%	\$189.16 for up to 17%	\$62.21 for up to 13 tons

NB: each WTP is estimated individually while holding the other elements constant

The survey results suggest that wood-based framing construction (instead of steel- or concrete- based framing) can better achieve certain environmental standards since, particularly in the case of greenhouse gas emissions, wood framing has lower green house gas emissions than either steel- or concrete-framed houses. That is to say that the reduction in the number of tons a respondent was willing to pay for always exceeds the inherent

reductions when these two framing systems were compared. For example, in Minneapolis, using wood instead of concrete results in a 9.8-ton reduction in greenhouse gas emissions; in Atlanta, using wood instead of concrete results in a 6.6-ton reduction[1].

Comparison Between Reductions in Different Building Materials and WTP

Environmental attribute	Minneapolis Steel vs. wood	Atlanta Concrete vs. wood	Maximum amount respondents WTP
Greenhouse gas emissions	9.8 tons	6.6 tons	11 tons
Air emissions	14%	23%	18%
Solid waste emissions	-0.9%	51%	18%

This survey has useful implications for both market and policy applications. For marketing purposes, the results suggest that those building materials producers seeking to increase their market share can point to better environmental performance associated with those materials that produce lower emissions, particularly greenhouse gases. For policy purposes, programs that aim to improve environmental performance standards might want to design a label that indicates the lower emissions standards in building material products. Perhaps a label similar to that of the “green star” by the EPA might be appropriate. Such a label may be used to educate homebuyers on the environmental performances associated with the building materials used in the construction of the house. Research into effective marketing tools should be conducted to provide consumers with the environmental attribute information to enable them to make better-informed decisions about the building products they purchase.

^[1] Lippke, B., J. Wilson, J. Perez-Garcia, J. Bowyer, J. Meil, 2004, CORRIM: Life Cycle Environmental Performance of Renewable Building Materials, Forest Products Journal, 54(6): 8-19.

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