

US EPA ARCHIVE DOCUMENT

## Decking Alternatives Cost Calculator



This Cost Calculator is designed to estimate the cost of using environmentally preferable recycled plastic and recycled wood/plastic composite lumber, rather than conventional virgin wood, for building a new deck. The Cost Calculator demonstrates that environmentally preferable decking options are very cost competitive. In many cases, initial costs for environmentally preferable products are comparable to conventional wood. Where initial costs are higher, they are made up for by savings over time.

Based on the size of the project, the Cost Calculator tab estimates the initial, 3 year, 6 year, 10 year, lifetime, and average annual costs for each of the four most common decking materials (recycled HDPE plastic, recycled plastic/wood composite, cedar/redwood, and pressure treated southern yellow pine). To use the Cost Calculator, input the area of the deck under consideration into the blue "Input" box at the top of the worksheet. This is the only information that you need to provide to use the Cost Calculator.

In the Cost Data tab, EPA provides national averages or ranges of costs. Cost data collected from sources dated before 2006 are adjusted for inflation. If you prefer, you can substitute your own cost data into the green cells. If you have a single cost estimate instead of a range, input it in both the Low Cost Estimate and High Cost Estimate cells. Lifespan ranges provided are widely agreed upon for products analyzed; we do not recommend changing lifespan information and the calculator may not work properly if lifespan information is changed.

The EHS Benefits tab provides a summary of the environmental, health, and safety benefits of using recycled plastic or recycled wood/plastic composite lumber instead of virgin wood.

Please direct questions or comments on this Cost Calculator to: Jean Schwab, U.S. EPA GreenScapes Program Manager, [schwab.jean@epa.gov](mailto:schwab.jean@epa.gov) or 703-308-8669.



Input

Area of Deck (Sq. Feet) **600**

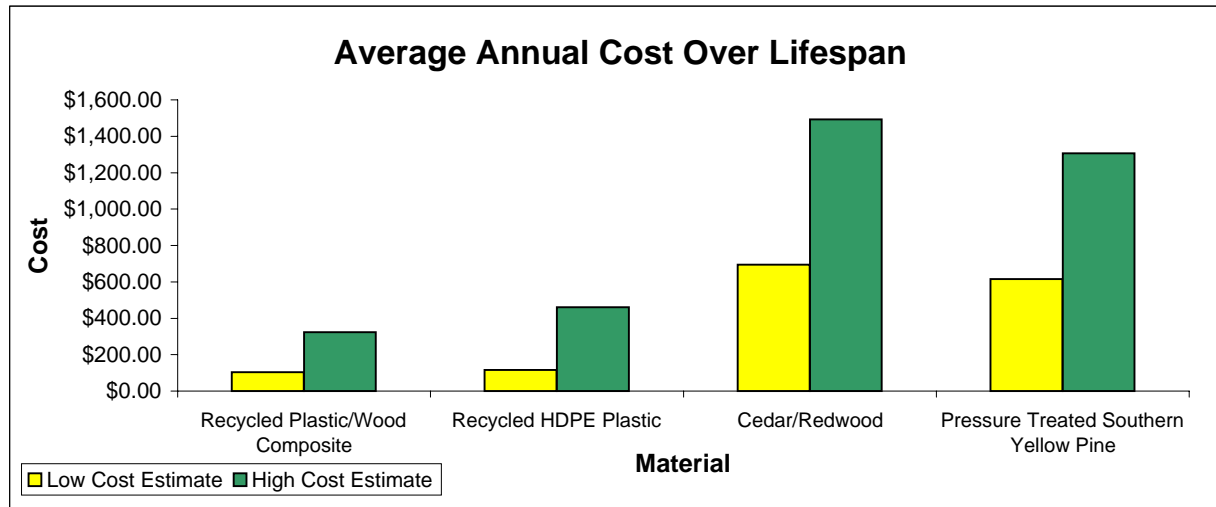
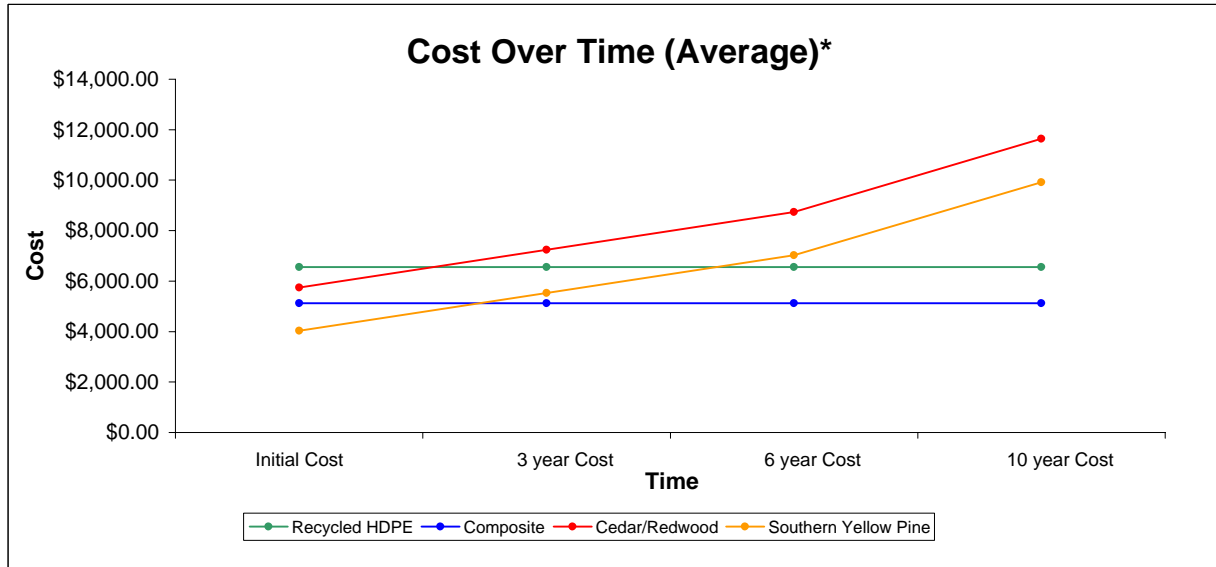
Recycled HDPE Plastic	Low Cost Estimate	High Cost Estimate	Average Costs
Cost of Materials	\$1,296.00	\$5,356.80	
Cost of Installation	\$2,100.00	\$4,350.00	
Initial Cost	\$3,396.00	\$9,706.80	\$6,551.40
Cost of Maintenance (annual)	\$0.00	\$0.00	
Disassembly, Removal and Disposal Cost	\$1,800.00	\$1,800.00	
Lifespan (years)	50	25	
3 year Cost	\$3,396.00	\$9,706.80	\$6,551.40
6 year Cost	\$3,396.00	\$9,706.80	\$6,551.40
10 year Cost	\$3,396.00	\$9,706.80	\$6,551.40
Lifetime Cost	\$5,196.00	\$11,506.80	
Average Annual Cost over Lifetime	\$103.92	\$460.27	

Recycled Plastic/Wood Composite	Low Cost Estimate	High Cost Estimate	Average Costs
Cost of Materials	\$1,872.00	\$3,120.00	
Cost of Installation	\$2,100.00	\$3,150.00	
Initial Cost	\$3,972.00	\$6,270.00	\$5,121.00
Cost of Maintenance (annual)	\$0.00	\$0.00	
Disassembly, Removal and Disposal Cost	\$1,800.00	\$1,800.00	
Lifespan (years)	50	25	
3 year Cost	\$3,972.00	\$6,270.00	\$5,121.00
6 year Cost	\$3,972.00	\$6,270.00	\$5,121.00
10 year Cost	\$3,972.00	\$6,270.00	\$5,121.00
Lifetime Cost	\$5,772.00	\$8,070.00	
Average Annual Cost over Lifetime	\$115.44	\$322.80	

Cedar/Redwood	Low Cost Estimate	High Cost Estimate	Average Costs
Cost of Materials	\$2,496.00	\$3,744.00	
Cost of Installation	\$2,100.00	\$3,150.00	
Initial Cost	\$4,596.00	\$6,894.00	\$5,745.00
Cost of Maintenance (annual)	\$374.40	\$624.00	
Disassembly, Removal and Disposal Cost	\$1,800.00	\$1,800.00	
Lifespan (years)	20	10	
3 year Cost	\$5,719.20	\$8,766.00	\$7,242.60
6 year Cost	\$6,842.40	\$10,638.00	\$8,740.20
10 year Cost	\$8,340.00	\$14,934.00	\$11,637.00
Lifetime Cost	\$13,884.00	\$14,934.00	
Average Annual Cost over Lifetime	\$694.20	\$1,493.40	

Pressure Treated Southern Yellow Pine	Low Cost Estimate	High Cost Estimate	Average Costs
Cost of Materials	\$936.00	\$1,872.00	
Cost of Installation	\$2,100.00	\$3,150.00	
Initial Cost	\$3,036.00	\$5,022.00	\$4,029.00
Cost of Maintenance (annual)	\$374.40	\$624.00	
Disassembly, Removal and Disposal Cost	\$1,800.00	\$1,800.00	
Lifespan (years)	20	10	
3 year Cost	\$4,159.20	\$6,894.00	\$5,526.60
6 year Cost	\$5,282.40	\$8,766.00	\$7,024.20
10 year Cost	\$6,780.00	\$13,062.00	\$9,921.00
Lifetime Cost	\$12,324.00	\$13,062.00	
Average Annual Cost over Lifetime	\$616.20	\$1,306.20	

Decking Alternatives Cost Graphs





Recycled HDPE Plastic	Units	Low Cost Estimate	High Cost Estimate	Sources	Data Explanation
Cost of Materials	\$/Sq. Foot	\$2.16	\$8.93	Low: <i>Plastic Lumber Yard</i> . 2005. <a href="http://www.plasticlumberyard.com/plasticlumber.htm#premium">http://www.plasticlumberyard.com/plasticlumber.htm#premium</a> ; High: Proulx, Danny. "Deck Building Alternatives." 1998. <a href="http://www.homeimages.com/deck.htm">http://www.homeimages.com/deck.htm</a>	For the Low Cost Estimate, 1x6 Tongue & Groove boards from the Plastic Lumber Yard were used because they are the most common size for decking.
Cost of Installation	\$/Sq. Foot	\$3.50	\$7.25	Low: " <i>Compare the Alternatives</i> ." American Ecoboard. July 3, 2006. <a href="http://www.ecoboard.org/compare.html">http://www.ecoboard.org/compare.html</a> High: Alan Robbins. Plastic Lumber Trade Association. Personal communication, May 26, 2006.	
Cost of Maintenance (annual)	\$/Sq. Foot	\$0.00	\$0.00	<i>FAQ's About Plastic Lumber</i> . 2005. Plastic Lumber Yard. <a href="http://plasticlumberyard.com/questions.htm">http://plasticlumberyard.com/questions.htm</a>	Plastic Lumber Yard's website states that plastic lumber is maintenance free.
Disassembly, Removal and Disposal Cost	\$/Sq. Foot	\$3.00	\$3.00	Craig Lawrence. Leisure Time Decks. Personal communication, June 28, 2006.	To uninstall, remove and dispose of a deck, Leisure Time Decks charges \$3/square foot, regardless of material.
Lifespan	Years	50	25	Low: <i>Frequently Asked Questions</i> . American Recycled Plastics Inc. Viewed May 19, 2006. <a href="http://www.itsrecycled.com/faq/s.shtml#How%20long%20does%20plastic%20lumber%20last?">http://www.itsrecycled.com/faq/s.shtml#How%20long%20does%20plastic%20lumber%20last?</a> High: Warranty Information. Engineered Plastic Lumber Systems, LLC. Viewed June 19, 2006. <a href="http://epsplasticlumber.com/warranty.shtml">http://epsplasticlumber.com/warranty.shtml</a>	While some websites claim that plastic lumber can last for 400 years, EPA has not found literature supporting this claim. Therefore, we use warranty information to estimate lifetime of plastic lumber products. American Recycled Plastics, Inc. offers a 25 year limited warranty on their recycled plastic lumber. Engineered Plastic Systems, LLC offers a 50 year limited warranty on their recycled plastic lumber.

Recycled Wood/Plastic Composite	Units	Low Cost Estimate	High Cost Estimate	Sources	Data Explanation
Cost of Materials	\$/Sq. Foot	\$3.12	\$5.20	Low: Wagner, John D. "Decking Decisions: New options mean your next deck might not even be real wood." 2005. <a href="http://www.thisoldhouse.com/toh/article/0,,220405,00.html">http://www.thisoldhouse.com/toh/article/0,,220405,00.html</a> High: Belden, Derick. "Decking 101: Now is the Time to Get Outdoors and Enjoy Your Deck." June 17, 2005. <a href="http://www.southernliving.com/southern/homes/hometips/article/0,13676,599857,00.html">http://www.southernliving.com/southern/homes/hometips/article/0,13676,599857,00.html</a>	
Cost of Installation	\$/Sq. Foot	\$3.50	\$5.25	NAHB Research Center, Inc. 1999 <i>Model reModel Field Evaluation</i> . July 2000. <a href="http://www.toolbase.org/pdf/fieldevaluations/ModelreModel/Final%20Report.pdf">http://www.toolbase.org/pdf/fieldevaluations/ModelreModel/Final Report.pdf</a> .	The 1999 <i>Model reModel Field Evaluation</i> states that the labor cost for installing recycled wood/plastic composite lumber is approximately the same as the labor cost for installing pressure treated lumber. Therefore, the same installation cost was used for both materials.
Cost of Maintenance (annual)	\$/Sq. Foot	\$0.00	\$0.00	<i>Product Information</i> . 2005. Trex. <a href="http://www.trex.com/products/default.aspx">http://www.trex.com/products/default.aspx</a>	Trex states that their product requires no staining or sealing.
Disassembly, Removal and Disposal Cost	\$/Sq. Foot	\$3.00	\$3.00	Craig Lawrence. Leisure Time Decks. Personal communication, June 28, 2006.	To uninstall, remove and dispose of a deck, Leisure Time Decks charges \$3/square foot, regardless of material.
Lifespan	Years	50	25	<i>Product Information</i> . 2005. Trex. <a href="http://www.trex.com/products/default.aspx">http://www.trex.com/products/default.aspx</a>	Trex offers a 25 year limited warranty and they state that their product has been tested to last for 50 years or more.

Cedar/Redwood		Units	Low Cost Estimate	High Cost Estimate	Sources	Data Explanation
Cost of Materials	\$/Sq. Foot		\$4.16	\$6.24	Belden, Derick. "Decking 101: Now is the Time to Get Outdoors and Enjoy Your Deck." June 17, 2005. < <a href="http://www.southernliving.com/southern/homes/hometips/article/0,13676,599857,00.html">http://www.southernliving.com/southern/homes/hometips/article/0,13676,599857,00.html</a> >	
Cost of Installation	\$/Sq. Foot		\$3.50	\$5.25	Low: "Compare the Alternatives." American Ecoboard. July 3, 2006. < <a href="http://www.ecoboard.org/compare.html">http://www.ecoboard.org/compare.html</a> > High: Alan Robbins. Plastic Lumber Trade Association. Personal communication, May 26, 2006.	
Cost of Maintenance (annual)	\$/Sq. Foot		\$0.62	\$1.04	Donegan, Fran J. "Deck Defense: A Guide to the Cleaners, Finishes and Techniques For Making Your Deck Look New Again." April 9, 2005. < <a href="http://www.thisoldhouse.com/toh/article/0,219491,00.html">http://www.thisoldhouse.com/toh/article/0,219491,00.html</a> >	This figure assumes hiring a professional to maintain the deck once a year. If you are planning on maintaining your deck independently, <i>Green Building Sustainable Building Sourcebook</i> estimates a cost of materials and labor of at least \$0.20 per square foot. < <a href="http://www.austinenergy.com/Energy%20Efficiency/Programs/Green%20Building/Sourcebook/outdoorDeckingMaterials.htm">http://www.austinenergy.com/Energy%20Efficiency/Programs/Green%20Building/Sourcebook/outdoorDeckingMaterials.htm</a> >
Disassembly, Removal and Disposal Cost	\$/Sq. Foot		\$3.00	\$3.00	Craig Lawrence. Leisure Time Decks. Personal communication, June 28, 2006.	To uninstall, remove and dispose of a deck, Leisure Time Decks charges \$3/square foot, regardless of material.
Lifespan	Years		20	10	<i>Composite Decking</i> . May 30, 2005. Technology Inventory. < <a href="http://www.toolbase.org/techinv/techDetails.aspx?technologyID=214">http://www.toolbase.org/techinv/techDetails.aspx?technologyID=214</a> >	

Pressure Treated Southern Yellow Pine		Units	Low Cost Estimate	High Cost Estimate	Sources	Data Explanation
Cost of Materials	\$/Sq. Foot		\$1.56	\$3.12	Low: Wagner, John D. "Decking Decisions: New options mean your next deck might not even be real wood." 2005. < <a href="http://www.thisoldhouse.com/toh/article/0,220405,00.html">http://www.thisoldhouse.com/toh/article/0,220405,00.html</a> > High: Belden, Derick. "Decking 101: Now is the Time to Get Outdoors and Enjoy Your Deck." June 17, 2005. < <a href="http://www.southernliving.com/southern/homes/hometips/article/0,13676,599857,00.html">http://www.southernliving.com/southern/homes/hometips/article/0,13676,599857,00.html</a> >	
Cost of Installation	\$/Sq. Foot		\$3.50	\$5.25	Low: "Compare the Alternatives." American Ecoboard. July 3, 2006. < <a href="http://www.ecoboard.org/compare.html">http://www.ecoboard.org/compare.html</a> > High: Alan Robbins. Plastic Lumber Trade Association. Personal communication, May 26, 2006.	
Cost of Maintenance (annual)	\$/Sq. Foot		\$0.62	\$1.04	Donegan, Fran J. "Deck Defense: A Guide to the Cleaners, Finishes and Techniques For Making Your Deck Look New Again." April 9, 2005 < <a href="http://www.thisoldhouse.com/toh/article/0,219491,00.html">http://www.thisoldhouse.com/toh/article/0,219491,00.html</a> >	
Disassembly, Removal and Disposal Cost	\$/Sq. Foot		\$3.00	\$3.00	Craig Lawrence. Leisure Time Decks. Personal communication, June 28, 2006.	To uninstall, remove and dispose of a deck, Leisure Time Decks charges \$3/square foot, regardless of material.
Lifespan	Years		20	10	<i>Composite Decking</i> . May 30, 2005. Technology Inventory. < <a href="http://www.toolbase.org/techinv/techDetails.aspx?technologyID=214">http://www.toolbase.org/techinv/techDetails.aspx?technologyID=214</a> >	

Inflation Adjustment Table	
One Dollar in...	Equals this many 2006 Dollars
1998	\$1.24
1999	\$1.22
2000	\$1.18
2001	\$1.14
2002	\$1.13
2003	\$1.10
2004	\$1.07
2005	\$1.04

Source: *CPI Inflation Calculator*. <<http://data.bls.gov/cgi-bin/cpicalc.pl>>

## Decking Alternatives Environmental, Health and Safety Benefits

**Building a deck with HDPE plastic or wood/plastic composite lumber instead of conventional hardwood or treated lumber makes environmental and economic sense.**

**Using recycled plastic lumber:**

**Conserves timber** because using recycled plastic lumber instead of wood reduces the demand for timber.  
**Reduces waste materials** by reusing plastic waste.

**Reduces waste and demand for landfill space** by reducing virgin plastic waste streams by creating markets for waste plastic. Plastic wastes do not break down over time; if not reused, they sit permanently in landfills or are incinerated. Thus, reducing the waste stream reduces pressure to build more landfills.

**Conserves local ecology** because using recycled plastic lumber instead of wood reduces the demand for timber. This abates deforestation pressures and supports healthy forest ecology.

**Preserves or restores wildlife habitat** because using recycled plastic lumber instead of wood reduces the demand for timber. This abates deforestation pressures and supports healthy forest habitats.

**Helps fight climate change** because using recycled plastic or recycled wood instead of virgin wood reduces demand for timber and deforestation pressures, and forests filter carbon dioxide, a key greenhouse gas responsible for global climate change (This process is known as carbon sequestration). EPA has developed several tools for calculating the greenhouse gas impacts of purchasing, waste management, and manufacturing activities, available at:

[http://www.epa.gov/climatechange/wycd/waste/calculators/Warm\\_home.html](http://www.epa.gov/climatechange/wycd/waste/calculators/Warm_home.html)

**Conserves fossil fuels** because using recycled plastic for plastic lumber reduces petroleum demand.

**Improves soil quality** because using recycled plastic lumber reduces use of pressure treated wood. Pressure treated wood can break down and leach preserving chemicals into surrounding soils.

**Reduces runoff and /or non-point source pollution** because using recycled plastic lumber reduces use of pressure treated wood. Pressure treated wood can break down and leach preserving chemicals into surrounding land and water bodies.

**Reduces human exposure to hazardous materials or substances** because manufacturing pressure treated wood can expose workers to potentially hazardous pressure treating chemicals, and pressure treated wood that breaks down can expose users to these chemicals.

**Protects worker or user safety** because wood can break down over time and splinter, potentially causing injuries.



**GreenScapes**  
Environmentally Beneficial Landscaping