

Testimony of Tim Keating, Executive Director, Rainforest Relief  
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- New York City is the largest municipal consumer of tropical hardwoods in North America and possibly in the world outside of the tropics.
- Each year agencies specifying wood for the city order tens of thousands of board feet of ipê illegally logged from the Brazilian and Peruvian Amazon for boardwalk renovations and park benches; greenheart from Guyana where illegal logging is rampant, for redecking of the Brooklyn Bridge and repairs to the Staten Island Ferry terminals; and ekki from African rainforests for subway track ties.
- Timber is increasingly associated with armed conflict in countries such as Cotê d'Ivoir, Liberia, Burma, Cambodia and elsewhere as the vast profits from illegal timber are funneled to weapons purchases by armies and mercenaries terrorizing local residents.
- A recent order of subway track ties by NYCTA was traced to a Chinese company operating in Liberia. The principal of the company is none other than Gus van Koewenhoven, notorious for his illegal gun running to Sierra Leone rebels as well as his dealings with the al Qaeda network. So, ironically, due to the specifying of tropical hardwoods from uncertified sources, NY taxpayers money may have been used by armed gangs bringing terror to West Africa as well as having made its way to the very group that Americans believe took down the WTC.

There are *dozens* of reasons *not* to use hardwoods from ancient tropical forests — as there are dozens of reasons *to* use recycled plastic lumber: local job creation, reduced landfilling, reduced maintenance and lawsuits, and saving vast sums of money over time.

The conclusion of our preliminary economic analysis of a 100,000-board-foot boardwalk deck over a 100-year lifespan shows the following costs for materials and labor: for toxic-chemical-treated softwoods, approximately \$5 million (\$4,921,875); for tropical hardwoods, approximately \$3.25 million (\$3,267,382.75); and for RPL, \$825,250.

An area of Staten Island Ferry terminal bumpers was replaced 8 years ago with recycled plastic lumber. Today, after years of collisions with 100-ton ferries, except for the scratches, the planks look like the day they were put in, while the wood around them has broken, splintered, rotted around the bolts, separated from the pilings and been replaced. Yet it seems DOT has no plans to switch to RPL for terminal bumpers.

Our campaign has led the Parks Department to finally switching to RPL for park playsets and away from tropical hardwoods for benches. But Parks has yet to test RPL for the boardwalks, even though ASTM standards now exist.

Chicago Transit Authority has already purchased over 100,000 cost-saving and low-maintenance RPL track ties, yet NYCTA, having tested only 100, has yet to purchase any for actual use.

Our City agencies, endowed with the power to decide how our tax moneys are used, seem mired in the past, refusing to embrace even 20th century technologies such as recycled plastic lumber.

It is time for the Council to end our City's participation in the destruction of tropical forests, the murder of indigenous peoples, the massive global trade in illegally logged tropical timber and the funneling of money to terrorism and armed conflicts around the world; time for the Council to pass legislation to drag our City agencies into the 21st Century.

Sincerely,

Tim Keating, Executive Director  
Rainforest Relief, 917/543-4064



## Facts About Tropical Forest Destruction and New York's Use of Tropical Woods

Testimony of Tim Keating, Executive Director, Rainforest Relief

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1/29/08  
~~6/13/02~~, Contract Committee, New York City Council

- Fifty to 90% of the world's species are contained in tropical forests.
- As scientists investigate rainforests, estimates of numbers of species on planet Earth continue to climb, with one prominent entomologist estimating the number of just insect species at 100 million.
- The loss of just 150 square feet of rainforest may drive as many as 1000 species of just beetles into oblivion.
- Due to the loss of tropical forests it is now confirmed our Earth has now been pushed into only the sixth great Mass Extinction to have occurred in the 3.5-billion-year history of life on Earth.
- Two billion people depend in whole or in part on tropical rainforests for at least some of their daily subsistence; many of those are indigenous people wholly dependent on their forests.
- At least 10 indigenous Amazonian tribes in Brazil have had members murdered by illegal loggers.
- From the peaceful Baka "pygmies" of West Africa to the Penan and Iban of Borneo; the Xikrin, Tembe, Wye Wye and dozens of others in the Brazilian Amazon; and even uncontacted tribes in Peru — around the world, indigenous forest people are displaced, forcibly relocated and even murdered outright in conflicts with loggers, their lands invaded and stripped of their life-giving forests.
- In one notable incident, at least 13 Yanomami were massacred by loggers in retaliation for killing a logger that had illegally invade their lands and killed a member of their tribe. The 13 included women, children and tribal elders.
- The woods most sought in tropical forests are those that command high prices at the ports, that is, those with a high export value.
- Excessive demand in *importing* countries is driving illegal and rapacious logging in tropical forests around the world.
- The UN Food and Agriculture Organization counts only the near-total clearing of trees as "deforestation" and thus underestimates the role of rapacious logging for timber.
- Logging for timber is the greatest direct cause of the loss of rainforest in Southeast Asia, especially Indonesia, Malaysia, Burma, Thailand, Papua New Guinea and the Solomon Islands:
- Logging for timber is in fact the largest factor leading to the destruction of rainforests, as loggers seeking high-value woods for export, such as mahogany and ipê in the Amazon, greenheart in Guyana, ramin and keruing in Indonesia and ekki and African mahogany in Cameroon, Gabon and Cotê d'Ivoire, punch roads into ancient forests, thus opening them up for further destruction.
- Philippines, once the largest tropical plywood exporter in the world, is now over 80% deforested and is a net timber importer. Illegal logging continues in the Philippines. The same fate has befallen Thailand, 70% deforested and still being illegally logged, and much of Africa, having lost from 50 – 90% of its original forest cover.

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*Exposing and Challenging Rainforest Consumption*

**R A I N F O R E S T R E L I E F**

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Recycled Plastic Lumber is already in wide use. It serves as an alternative to natural wood for flooring, fencing, walkways, railings, and boat docks.

Thank you for your efforts. Please keep us informed of similar NYC efforts related to green procurement.

Respectfully,

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The Honorable Letitia James  
Chairperson Contracts Committee  
NYC Council

Citizens' Environmental Coalition (CEC) is a statewide environmental organization that has worked on toxics, waste and other environmental issues for over 23 years. The Responsible Purchasing Network (RPN) is a national network of procurement-related professionals dedicated to socially responsible and environmentally sustainable purchasing. Together, we are pleased to voice our support for Resolution 782. The resolution urges the Governor and the Legislature to direct the State Agencies to procure Recycled Plastic Lumber over natural and chemically treated wood. Such a directive would yield substantial environmental, health, and financial benefits for the citizens of New York.

Strengthened by the experience and expertise of RPN members across the country, CEC has been working for over a year to promote greener procurement in New York. We have contributed considerable input along with a number of state agencies to a Green Purchasing Executive Order that the Governor is currently considering making applicable to all state purchasing decisions. The Order is heavily focused on eliminating the procurement of products containing toxic chemicals as well as promoting environmentally responsible purchases considering factors such as recycled content. New York State has an annual procurement budget of over \$8 billion. By shifting this budget towards environmental and socially responsible products, the State can make a profound effect on the market. Recycled Plastic Lumber, the subject of this resolution, would naturally be included in the state proposed Executive Order, as currently drafted. We therefore support this City Council resolution and look for your support in the future on broader green procurement initiatives at the State level.

Recycled Plastic Lumber has several environmental benefits. The most obvious is it reduces the number of trees cut down for lumber purposes. Many wood products are harvested unsustainably, tearing apart intact ecosystems and removing old growth trees. Trees also absorb carbon dioxide from the air and a natural way to reduce greenhouse gases. Transportation of lumber from forest to manufacturer then to the market also releases greenhouse gases into the atmosphere. By using a local RPL company the greenhouse gas emission can be reduced, particularly if the source for the material is from a municipal recycling program.

By using recycled plastics such as high density and low density polyethylene, the State will be keeping plastic out of landfills. Also, this will reduce the use of wood waste. Wood often needs to be treated with chemicals to be able to stand up to the outdoor elements. Recycled Plastic Lumber does not need to be treated with chemicals as it is naturally chemical and moisture resistant and also is very low maintenance. While Recycled Plastic Lumber is more expensive up front, it is more economical over its life cycle because it is longer lasting than virgin wood, requires less maintenance, and is recyclable.



## An Analysis of the Economics of Recycled Plastic Lumber vs. Tropical Hardwoods vs. Pressure-treated Domestic Softwoods for a Hypothetical Boardwalk Project

Tim Keating, *Director*, Rainforest Relief

Numerous alternative materials exist for use in waterfront and coastal construction of piers, docks, marinas, boardwalks, bulkheads, ferry terminals and bridges. Each material has economic, social and environmental costs.

Rainforest Relief has analyzed the costs associated with the use of commonly used materials and their alternatives: chemically-treated softwoods (while CCA is being phased out for residential use, at this time the continuing use of CCA for commercial and municipal applications is unclear and in all likelihood, CCA's replacement will cost about the same and last about as long); structural recycled plastic lumber; structural recycled plastic lumber with I-beam construction; a recycled plastic/wood composite; ipê, a tropical hardwood logged in Brazil; black locust, a domestic hardwood from an independently certified operation.

For the analysis, a theoretical boardwalk renovation project was envisioned. The project has two sections, one in which the boardwalk is being entirely rebuilt from the ground up, ultimately utilizing 100,000 board feet of decking (10,715 14'-long 2"x4" beams) as well as the material for the understructure (see figure 1); and another section in which only the 100,000 board feet of decking is being replaced.

The costs associated with renovations to each of the two sections with the various materials was analyzed for eight factors that contribute to costs either immediately or over the life-span of the project: **Materials Purchase Cost, Installation, Durability, Other Maintenance, Additional Personnel Costs, Liability, Disposal Costs, and Fires.** For each of the factors the costs or savings were extended based on a life span for the project of 100 years. It is very reasonable to assume that these installations are expected to last that long based on existing projects. New York City's boardwalks were first built in the 1920s; Atlantic City's — the nation's first oceanside boardwalk — was built in the 1890s. No one assumes that any of the other boardwalks having existed for forty years or more or any of the more recent boardwalks, such as Greenport, NY or Yonkers, NY will be dismantled in fifteen years — the typical lifespan of the pressure-treated softwoods typically used for these projects.

While the analysis is based on a theoretical project the costs associated with the purchase, maintenance and other aspects are real, based on research of actual projects and product suppliers as well as interviews with numerous people involved in the installation and maintenance of actual boardwalks in the New York metropolitan region.

For the tropical hardwoods, while greenheart (Guyana), ekki (West Africa) and apitong (Borneo) are all also used for decking, ipê was chosen for the analysis since it has become the most common tropical hardwood used for both municipal and residential decking projects in the U.S.

For recycled plastic lumber, the analysis of costs, durability and maintenance were based on products from two companies, both of whom make a structural recycled plastic lumber suitable for load-bearing decking and structural support members.

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For the CCA, a lifespan of twelve (12) years was used. This is based on numerous published reports as well as ten years of organizational experience and communications with users of the material. Personal communications regarding CCA have quoted lifespans of as little as seven (7) years but as much as fifteen (15) years.

For ipê, a lifespan of twenty-five (25) years was used. While companies typically guarantee the material for twenty (20) years, New York City entirely replaced the ipê on the Coney Island section of the boardwalk after approximately thirty (30) years. By then, the wood was heavily checked, splintered, warped and worn around the fasteners.

For recycled plastic lumber a lifespan of 100 years was used for the analysis. While to our knowledge no recycled plastic lumber has been in use for more than 17 years, accelerated aging tests by the U.S. Army Corps of Engineers as well as tests on 11-year-old material exposed to the weather have shown a reasonable life expectancy exceeding 100 years. The accelerated aging tests by the Army Corps were stopped after a tested fifty (50) years not because the material disintegrated but because the government doesn't amortize anything beyond 50 years. After that long, any product is assumed to have gone beyond any 'break-even' point. In the 50-year test, the material was shown to have had *no significant deterioration*.

Other tests on RPL exposed to the weather have actually shown an *increase* in mechanical properties such as modulus of elasticity and modulus of rupture — that is, the boards became *stiffer and stronger after exposure over time to the elements*. Further, the plastics that make up RPL *have* been in use for over 60 years. In that time, certain products made from those plastics have shown their ability to last at least that long.

### 1. Initial Purchase

- RPL costs approximately \$2.70/bd. ft; tropical hardwoods approximately \$2.20, domestic softwoods approximately \$0.40. This yields \$270,000 for RPL, \$220,000 for hardwoods and \$40,000 for softwoods. Because RPL is more flexible than either of the woods, it is possible, given the use of the boardwalk by trucks and an existing understructure with 24" centers that more understructure would have to be installed. This could add about 20% to the up front cost of the RPL purchase, yielding a total for RPL of \$324,000. Given the lifespan of the materials, repeated purchase over 100 years yields the following.

	Product			Extended Cost Over 100 Years		
	CCA	Ipê	RPL	CCA	Ipê	RPL
<b>Purchase</b>	\$40,000	\$220,000	\$324,000	\$400,000	\$732,600	\$324,000

### 2. Installation

- RPL is easier to install than tropical hardwoods, thus saving substantial labor costs and about the same as domestic softwoods.

A hundred-thousand board-foot boardwalk installation would cost about \$400,000 to install for tropical hardwoods. If we assume 15% less costs for installation of softwoods and RPL, this yields \$340,000 for RPL and softwoods. However, for RPL we can assume an extra 20% installation cost for the added understructure for the first installation.

Given the lifespan of the materials, repeated installation over 100 years yields the following.

	Product			Extended Cost Over 100 Years		
	CCA	Ipê	RPL	CCA	Ipê	RPL
<b>Purchase</b>	\$40,000	\$220,000	\$324,000	\$400,000	\$732,600	\$324,000
<b>Installation</b>	\$340,000	\$400,000	\$400,000	\$3,400,000	\$1,332,000	\$400,000

### 3. Maintenance

- *True RPL lasts far longer than any wood.*

When exposed to the elements, the mechanical properties of wood fall dramatically. This leads to a percentage of the boards needing to be replaced board-by-board prior to the entire deck replacement. This totals about 10% of the decking boards by the time the deck has reached the point of total replacement. This yields an additional purchase cost (reflected in the purchase cost, above) but also additional labor costs. Average annual board replacement over the life of the wood deck can be assumed to be around \$10,000 for softwoods and hardwoods.

	Product			Extended Cost Over 100 Years		
	CCA	Ipê	RPL	CCA	Ipê	RPL
<b>Purchase</b>	\$40,000	\$220,000	\$324,000	\$400,000	\$732,600	\$324,000
<b>Installation</b>	\$340,000	\$400,000	\$400,000	\$3,400,000	\$1,332,000	\$400,000
<b>Annual Maintenance</b>	\$10,000	\$10,000	\$0	\$1,000,000	\$1,000,000	\$100,000

### Liability

- *One of the biggest costs associated with wood boardwalks is lawsuits associated with splintering. RPL does not splinter and therefore splinter lawsuits are eliminated.*
- *Newly-installed tropical timber is slippery and there are slip-and-fall lawsuits.*

*No numbers for liability were available for this summary.*

### Additional Personnel Costs

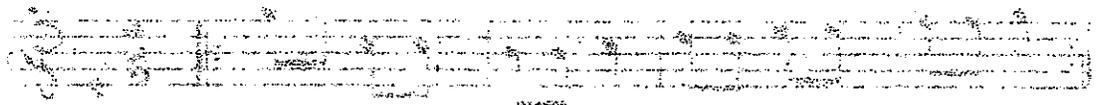
- *Every time a wood installation is replaced, staff time is required to assess, order, design, engineer, deliver and supervise the purchase, receipt and installation of the materials.*

In a typical city we can assume these costs are around \$10,000.

Given the lifespan of the products over 100 years this would yield the following.

	Product			Extended Cost Over 100 Years		
	CCA	Ipê	RPL	CCA	Ipê	RPL
<b>Purchase</b>	\$40,000	\$220,000	\$324,000	\$400,000	\$732,600	\$324,000
<b>Installation</b>	\$340,000	\$400,000	\$400,000	\$3,400,000	\$1,332,000	\$400,000
<b>Annual Maintenance</b>	\$10,000	\$10,000	\$10,000	\$1,000,000	\$330,000	\$100,000
<b>Additional Personnel Costs</b>	\$10,000	\$10,000	\$10,000	\$100,000	\$33,000	\$0
<b>Disposal Costs</b>						

- *Every time a wood installation is replaced, the old wood needs to be disposed of.*  
In New York City, tipping fees at Fresh Kills Landfill are about \$100 per ton. Since Fresh Kills is now closing, disposal costs for debris are escalating.  
This cost arises every time a wood installation is replaced, which, for tropical hardwoods, could occur up to five times over the life of a single RPL installation.
- Even if RPL needed to be disposed of, it would only happen once compared to five times for wood. But RPL can be re-recycled, thus eliminated disposal completely [would this be at the cost of the supplier -- that is, do companies pick up their used RPL (if not yet, this is certainly something to talk to them about)];
- For chemically-treated wood, disposal costs are subsidized, since arsenic-containing materials have been classified as a hazardous waste. But until now, pressure-treated wood has been exempted from this classification. This exemption (which is purely a subsidy to the industry, since the downstream costs of this toxic substance will be borne by society rather than the producer) is sure to end soon.
- Hardwoods weigh about one ton per 4,000 board feet. Softwoods weigh about one ton per 8,000 board feet. Given the deterioration and loss of moisture of wood exposed to the elements, we can assume a 20% reduction in weight at time of disposal, yielding one ton per 3,200 board feet for hardwoods and one ton per 6,400 board feet for softwoods.
- Further, the cost to truck the materials to the landfill or back to the factor add to disposal costs. We assume \$40/ton of material. RPL weighs approximately the same as hardwoods.



Given the lifespan of the materials, disposal over 100 years (at current costs) would yield the following.

	Product			Extended Cost Over 100 Years		
	CCA	Ipê	RPL	CCA	Ipê	RPL
<b>Purchase</b>	\$40,000	\$220,000	\$324,000	\$400,000	\$732,600	\$324,000
<b>Installation</b>	\$340,000	\$400,000	\$400,000	\$3,400,000	\$1,332,000	\$400,000
<b>Annual Maintenance</b>	\$10,000	\$10,000	\$10,000	\$1,000,000	\$330,000	\$100,000
<b>Additional Personnel Costs</b>	\$10,000	\$10,000	\$10,000	\$100,000	\$33,000	\$0
<b>Disposal (Tipping)</b>	\$1,562.50	\$3,125	\$0	\$15,625	\$10,406.25	\$0
<b>Disposal (Trucking)</b>	\$625	\$1,250	\$1,250	\$6,250	\$4,162.50	\$1,250
<b>Total</b>	\$402,187.50	\$1,046,562.5	\$1,791,812.5	\$4,921,875	\$3,267,382.7	\$825,250

This analysis reveals that total costs over 100 years for a one-hundred-thousand-board-foot boardwalk made of CCA would be approximately \$4,921,875; of tropical hardwoods would be approximately \$3,267,383 and of RPL would be \$825,250.