

# **Evaluation of Infrastructure at Nature Parks**

**for**

## **City of Gainesville Recreation and Parks Department**

TCS&A #31822

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PREPARED BY:

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## Evaluation and Comparison:

Location	Existing Structure(s)	History (Age)	Type of Construction	Materials Used	Condition	Life Expectancy (Remaining)	Suggested Maintenance
Alfred A. Ring Park 2424 NW 23rd Blvd. (start at Elks Lodge, end at NW 16 <sup>th</sup> Avenue near 19 <sup>th</sup> St.)	Steel Bridge	Built in 1990	Steel truss +/- 95' x 6'	Steel structure w/ wood deck and rail	Excellent	Steel - indefinite Wood deck 15 to 20 years and railings 10 years	Pressure-wash and seal every 1 to 2 years
	Picnic Pavilion		Post and beam, (4) bay 16' x 32'	P. T. posts with conc. slab	Excellent	Indefinitely	Paint as required and replace roof shingles every 20 years
	Restrooms		Wood Frame 7' x 21'	T-111 siding, Painted	Good	15 years (siding)	Paint with mold resistant paint every 10 years. Scrub w/bleach water every 3 to 5 years. Modify adjacent ground to avoid contact with wood (6" preferred)
	Wildlife Observation Blind		Wood Frame 7' x 33'	P. T. posts and 1x8 siding, and 2 x 6 decking, Painted	Good	15 years for siding and 20 years for posts	Paint with mold-resistant paint every 10 years. Pressure wash every 5 years
	Deck / Lookout		Post and beam 5' x 54' ramp with 14' x 15' deck	P. T. 3x6 decking, 4x4 and 6x6 posts, 3x10 framing, railing and benches, galvanized bolts, nails and spikes	Good	15 to 20 years for both decking and frame. 10 years for railings	Pressure-wash and seal every 1 to 2 years
	Boardwalks		Post and beam	P. T. 3x6 decking, 4x4 and 6x6 posts, 2x10 framing, railing and benches, galvanized bolts, nails and spikes	Good	15 to 20 years for both decking and frame. 10 years for railings	Pressure-wash and seal every 1 to 2 years

Location	Existing Structure(s)	History (Age)	Type of Construction	Materials Used	Condition	Life Expectancy (Remaining)	Suggested Maintenance
Bivens Arm Nature Park 3650 S. Main Street	Boardwalk +/-1,200 ft.	Built in 1985	Post and beam	P. T. 3x6 and 4x6 decking, 4x6, 6x6 and 8x8 posts, 2x8 and 2x10 framing, railing and benches, galvanized bolts, nails and spikes	Fair to poor with some new repairs	2 to 5 years	Epoxy fill any deteriorated post caps and splits in structural members. Pressure wash and seal every year
	Picnic Tables		Wood Frame	P. T. wood and galvanized bolts and nails	Fair	5 years	Pressure wash and seal every year
	Nature Center Pavilion		Post and beam and truss	P. T. wood and galvanized bolts and nails and wood shingles	Good w/X roof	15 to 20 years if roof replaced (5 to 10 years if not)	Replace roof and seal or paint structure
	Pavilion		Post and beam and truss	P. T. wood and galvanized bolts and nails and wood shingles	Fair w/X roof	15 to 20 years if roof and several beams replaced (5 to 10 years if not)	Replace roof and seal or paint structure
	Restrooms		Wood Frame	Plywood siding and wood trim, Painted	Good to Fair	10 to 15 years	Paint with mold resistant paint every 10 years. Scrub w/bleach water every 3 to 5 years. Modify adjacent ground to avoid contact with wood (6" preferred)

Location	Existing Structure(s)	History (Age)	Type of Construction	Materials Used	Condition	Life Expectancy (Remaining)	Suggested Maintenance
Morningside Nature Center 3540 East University Avenue	Cypress Dome Boardwalk	1988	Post and beam 6' x 352' with 16'x16' deck and (9) benches	P. T. 3 x6 decking, 4x6 and 6x6 posts, 2x10 framing, railings and benches, galvanized bolts, nails and spikes	Fair	10 to 15 years for both decking and frame. 10 years for railings	Pressure-wash and seal every 1 to 2 years.
	North Boardwalk	Pre- 1986	Post and beam 18' ramp and 5' x 201' deck	P. T. 2 x10 decking, 6x6 posts, 2x10 framing, railing, bench and shelter, galvanized bolts, nails and spikes	X	Replace	Bleach and scrub brush at remote North walk every year
	Marsh Overlook		Post and beam 6' x 22' ramp with 13' x 18' deck	P. T. 2x10 decking, 6x6 posts, creosote poles, galvanized bolts, nails and spikes	Good	10 to 15 years for decking and posts and 20 to 30 years for poles	Pressure-wash and seal every 1 to 2 years
	Bird Blind		Post and beam 5' x20'	P. T. 2x6 decking, 4x4 posts, poles, galvanized bolts, nails and spikes, Painted.	Good	10 to 15 years for decking and posts and 20 to 30 years for poles	Paint with mold resistant paint every 10 years. Scrub w/bleach water every 3 to 5 years.
	Restrooms		Stone Masonry	Stone and prestressed concrete	Good	Indefinitely	Pressure-wash and seal every 1 to 2 years
	Picnic Tables		Precast	Precast concrete	Good	Indefinitely	Pressure-wash and seal every 1 to 2 years

Location	Existing Structure(s)	History (Age)	Type of Construction	Materials Used	Condition	Life Expectancy (Remaining)	Suggested Maintenance
Gumroot Park SR26 and NE 27 <sup>th</sup> Avenue	Future Boardwalk and bridge	N/A	TBD	TBD	N/A	TBD	TBD
Greenway 3315 NW 5 <sup>th</sup> Avenue (Loblolly)	Future Boardwalk	N/A	TBD	TBD	N/A	TBD	TBD

### **Material Comparisons:**

Limitations: Note that **most** Engineered Lumber is non-structural and P.T. wood framing would generally be required for all the following materials listed in the chart (except BTW Industries, Inc.). Most engineered lumber manufacturers recommend Stainless Steel screw fasteners and support framing at 16" o.c. Therefore, **cost comparisons are based on decking "material" only**. 2" x 6" Pressure Treated wood is used as the standard. Even though existing decking is 3" x 6", 2" x 6" is used for comparison due to similar structural span capability.

Structural: Most of the engineered decking can only span 16" to 24" and most of the existing boardwalks have supports at 48" to 72" o.c. Therefore, additional support framing is necessary if engineered decking is utilized. If engineered lumber is used for framing, it typically requires about 25% to 33% more supports than wood ( i.e. - supports at 18" o.c. rather than 24" o.c.). Additional costs of framing may be balanced by the reduced cost of decking thickness. Cost for waste must be included for either P.T. decking or engineered decking. P.T. decking is available in 8', 10', 12', 14' and 16' lengths whereas engineered lumber may only come in 8', 12', and 16' lengths. Pending the deck design, there could be more wasted material using engineered decking. Finally, not all of the engineered products are available locally and shipping charges may be incurred.

Labor/Installation: Labor costs for engineered decking may tend to be higher due to additional framing installation and because engineered lumber may weigh more than PT decking of the same dimension.

Durability: Another point to consider is that the wood framing (posts and beams) deteriorate, especially in locations of fasteners and contact with the ground or tops of posts. Post tops could be capped or tapered to decrease water from decaying the end. New engineered decking and fasteners could outperform these structural members. Unfortunately, there is not much that can be done about the beams deteriorating except utilizing steel which poses its own set of cost and maintenance issues and greatly increases construction costs. Finally, note that some products are made completely of plastics and/or polymers while others have wood fiber. It has been argued that products with wood fibers **might** be affected by insects or other issues that typically affect wood.

Material	*Cost	Life Expectancy or *Warranty	*Suggested Maintenance
Pressure Treated Wood 5/4" x 6", #2 SYP, 0.25 pcf CCA	N/A	Not recommended for commercial use	N/A
Pressure Treated Wood 5/4" x 6", #2 SYP, 0.40 pcf CCA	N/A	Not recommended for commercial use	N/A
Pressure Treated Wood 2" x 6", #2 SYP, 0.25 pcf CCA	N/A	Not recommended for commercial use	N/A
Pressure Treated Wood 2" x 6", #2 SYP, 0.40 pcf CCA	\$0.38 to \$0.57/lf (pending lengths)	31 to 36 years Life Expectancy	Pressure-wash and seal every 1 to 2 years
BTW Industries, Inc. (Recycled Plastic Lumber)	\$1.10 to \$2.20 /lf (pending lengths)	50 Years Limited Warranty	Pressure-wash every 1 to 2 years
TimberTech Limited TimberTech (Engineered Decking)	\$2.21/lf	10 Year Limited Warranty	Conventional deck washes or cleaners
Trex Company Easy Care Decking (Engineered Decking)	\$1.00 to \$2.12/lf (pending lengths)	25 Year Life Expectancy	Conventional deck washes or cleaners
U.S. Plastic Lumber Ltd. Carefree Decking System (Engineered Decking)	\$3.00	50 Year Limited Warranty against splitting, cracking, rot, insect damage, corrosion or fungal decay	Maintenance Free claim (Pressure washing recommended)
Weyerhaeuser Choice Dek Classic (Engineered Decking)	\$1.32/lf	*10 to 20 Year Limited Warranty	Pressure-wash every 1 to 2 years w/Conventional deck wash or cleaner
Weyerhaeuser Choice Dek Plus (Engineered Decking, benches, handrails Accessories)	\$1.60/lf	*20 Year Limited Warranty	Pressure-wash every 1 to 2 years w/Conventional deck wash or cleaner



## Definitions and Footnotes:

TBD = To Be Determined

N/A = Not Applicable

#2 = Grade of Wood, typical for decking

SYP = Southern Yellow Pine

PT = Pressure Treated

0.25 psf CCA = Pressure treated wood **not** in contact with ground: Water Borne preservatives with a minimum retention of 0.25 lbs./cu. ft. chromated copper arsenate (CCA), acid copper chromage, FS TT-W-546 (ACC) (Celcure) or fluorochrome arsenate phenol moisture, Type A or B, FS TT-W-535 (FCAP) (Osmosalts, Tanalith, or Wolman Salts), seasoned or conditioned after treatment to accept further finishes.

0.40 psf CCA = Pressure treated wood in contact with the ground: Water Borne preservatives with a minimum retention of 0.40 lbs./cu. ft. chromated copper arsenate (CCA), acid copper chromage, FS TT-W-546 (ACC) (Celcure) or fluorochrome arsenate phenol moisture, Type A or B, FS TT-W-535 (FCAP) (Osmosalts, Tanalith, or Wolman Salts), seasoned or conditioned after treatment to accept further finishes.

Engineered Decking or Lumber = Decking, Lumber or Accessories composed of any number of recycled compositions of wood fiber and/or plastics and/or polymers. This lumber can be installed with standard woodworking tools, can be stained or painted (could add to maintenance as foot traffic removes paint) and can be sanded to remove scratches. It does not warp or twist or rot like wood, but the finish appearance does fade and weather similar to wood. Some manufactures have up to three color selections

\*Cost = Note that market prices fluctuate (especially with lumber) pending season, economy, drought, etc.

\*Warranty = Warrantees denoted with an "\*" are for residential installations, but are noted here for your general information.

\*Suggested Maintenance = Pending: traffic, stains from tannic acid in leaves, mold growth due to shaded areas, etc. Note that bleaching is recommended only at locations at a distance from creeks or water bodies. Also note that there are some remote boardwalks, such as the North Boardwalk at Morningside Nature Center. Pressure washing could be done with a pump truck and a hose via access road.

Condition Rating System:

- New ( less than 2 years old)
- Excellent - few signs of traffic wear and tear, warping, mold growth or insect or weather damage
- Good - few signs of traffic wear and tear or warping, but minor mold growth
- Fair - wood splintering and wearing due to traffic, minor warping, mold growth or insect and weather damage
- Poor - very worn and splintered or warped or cracked and generally deteriorating
- X - beyond repair and maintenance / recommend replacement

**Replacement and Life Cycle Cost Comparison (approximation in today's dollars):** (Note that replacement costs include "additional" structural framing since most existing decks are 3 x 6 material rather than 2 x 6. Costs include all hardware, decking and additional structural framing "material" only / no labor or basic structural framing. Structures other than decks (ie - Pavilions or Restrooms) include costs to replace the entire structure. Demolition of old structures is not included. Life Cycle (LC) costs include yearly proportionate replacement costs and suggested maintenance).

Location	Existing Structure(s)	P.T. Wood 2"x6", #2 SYP 0.40 pcf CCA	BTW Industries Inc. Recycled Plastic Lumber	TimberTech Limited TimberTech (Engineered Decking)	Trex Company Easy Care Decking (Engineered Decking)	U.S.Plastic Lumber Ltd. Carefree Decking System (Engineered Decking)	Weyerhaeuser Choice Deck Plus (Engineered Decking)
Alfred A. Ring Park 2424 NW 23 <sup>rd</sup> Blvd. (start at Elks Lodge, end at NW 16 <sup>th</sup> Avenue near 19 <sup>th</sup> St.)	Steel Bridge decking and railings +/-570 sf	\$1,710 / 31 to 36 years LC =\$110/yr	\$3,420 / 50 years LC =\$137/yr	\$6,840 / 10 years LC =\$934/yr	\$3,078 / 25 years LC =\$373/yr	\$10,260 / 50 years LC =\$410/yr	\$2,565 /20 years LC =\$257/yr
	Picnic Pavilion +/-512 sf	\$10,240 / 31 to 36 years LC =\$661/yr	N/A	N/A	N/A	N/A	N/A
	Restrooms +/-147 sf	\$7,350 / 31 to 36 years LC =\$474/yr	N/A	N/A	N/A	N/A	N/A
	Wildlife Observation Blind +/-231 sf	\$4,620 / 31 to 36 years LC =\$298/yr	\$9,240 / 50 years LC =\$370/yr	\$18,480 / 10 years LC =\$2,098/yr	\$8,316 / 25 years LC =\$583/yr	\$27,720 / 50 years LC =\$1,109/yr	\$6,930 /20 years LC =\$693/yr
Deck / Lookout +/-480 sf	\$1,200 / 31 to 36 years LC =\$77/yr	\$2,400 / 50 years LC =\$96/yr	\$4,800 / 10 years LC =\$730/yr	\$2,160 / 25 years LC =\$336/yr	\$7,200 / 50 years LC =\$288/yr	\$1,800 /20 years LC =\$180/yr	
Boardwalks +/-5,400 sf	\$13,500/ 31 to 36 years LC =\$871/yr	\$27,000 / 50 years LC =\$1,080/yr	\$54,000 / 10 years LC =\$5,750/yr	\$24,300 / 25 years LC =\$1,322/yr	\$81,000 / 50 years LC =\$3,240/yr	\$20,250 /20 years LC =\$2,025/yr	

Location	Existing Structure(s)	P. T. Wood 2"x6", #2 SYP 0.40 pcf CCA	BTW Industries Inc. Recycled Plastic Lumber	TimberTech Limited TimberTech (Engineered Decking)	Trex Company Easy Care Decking (Engineered Decking)	U.S. Plastic Lumber Ltd. Carefree Decking System (Engineered Decking)	Weyerhaeuser Choice Deck Plus (Engineered Decking)	
Bivens Arm Nature Park 3650 S. Main Street	Boardwalk +/-10,400 sf	\$26,000 / 31 to 36 years LC = \$1,677/yr	\$52,000 / 50 years LC = \$2,080/yr	\$104,000 / 10 years LC = \$11,100/yr	\$46,800 / 25 years LC = \$2,572/yr	\$156,000 / 50 years LC = \$6,240/yr	\$39,000 / 20 years LC = \$3,900/yr	
	Picnic Tables	\$200/ea	\$400/ea	N/A	N/A	N/A	\$300/ea	
	Nature Center Pavilion +/-1,800 s.f.	\$108,000 / 31 to 36 years LC = \$6,968/yr	N/A	N/A	N/A	N/A	N/A	N/A
	Pavilion +/-560 s.f.	\$28,000 / 31 to 36 years LC = \$1,806/yr	N/A	N/A	N/A	N/A	N/A	N/A
	Restrooms +/-750 s.f.	\$37,500 / 31 to 36 years LC = \$2,419/yr	N/A	N/A	N/A	N/A	N/A	N/A

Location	Existing Structure(s)	P. T. Wood 2"x6", #2 SYP 0.40 pcf CCA	BTW Industries Inc. Recycled Plastic Lumber	TimberTech Limited TimberTech (Engineered Decking)	Trex Company Easy Care Decking (Engineered Decking)	U.S. Plastic Lumber Ltd. Carefree Decking System (Engineered Decking)	Weyerhaeuser Choice Deck Plus (Engineered Decking)
Morningside Nature Center 3540 East University Avenue	Cypress Dome Boardwalk +/-2,818 s.f.	\$7,045 / 31 to 36 years LC = \$455/yr	\$14,090 / 50 years LC = \$564/yr	\$28,180 / 10 years LC = \$3,318/yr	\$12,681 / 25 years LC = \$1,007/yr	\$42,270 / 50 years LC = \$1,691/yr	\$10,568 / 20 years LC = \$1,057/yr
	North Boardwalk +/-1,095 s.f.	\$2,738 / 31 to 36 years LC = \$177/yr	\$5,476 / 50 years LC = \$219/yr	\$10,952 / 10 years LC = \$1,595/yr	\$4,928 / 25 years LC = \$697/yr	\$16,428 / 50 years LC = \$657/yr	\$4,107 / 20 years LC = \$411/yr
	Marsh Overlook +/-366 s.f.	\$915 / 31 to 36 years LC = \$60/yr	\$1,830 / 50 years LC = \$73/yr	\$3,660 / 10 years LC = \$616/yr	\$1,647 / 25 years LC = \$316/yr	\$5,490 / 50 years LC = \$220/yr	\$1,373 / 20 years LC = \$137/yr
	Bird Blind +/-100 s.f.	\$2,000 / 31 to 36 years LC = \$129/yr	\$4,000 / 50 years LC = \$160/yr	\$8,000 / 10 years LC = \$1,050/yr	\$3,600 / 25 years LC = \$394/yr	\$12,000 / 50 years LC = \$240/yr	\$10,568 / 20 years LC = \$300/yr
Gumroot Park SR26 and NE 27 <sup>th</sup> Avenue	Future Boardwalk and bridge +/-540 s.f.	\$1,350 / 31 to 36 years LC = \$87/yr	\$2,700 / 50 years LC = \$108/yr	\$5,400 / 10 years LC = \$790/yr	\$2,430 / 25 years LC = \$347/yr	\$8,100 / 50 years LC = \$324/yr	\$2,025 / 20 years LC = \$203
	Future Boardwalk +/-540 s.f.	\$1,350 / 31 to 36 years LC = \$87/yr	\$2,700 / 50 years LC = \$108/yr	\$5,400 / 10 years LC = \$790/yr	\$2,430 / 25 years LC = \$347/yr	\$8,100 / 50 years LC = \$324/yr	\$2,025 / 20 years LC = \$203

### **Other Points of Information:**

**Safety:** It is the Architects recommendation that warning signs be installed adjacent to each section of boardwalk, deck, ridge or similar structure. Some signs exist already to warn against being slippery when wet, but decks may also be slippery when dry pending mold growth. Additionally some decks may be totally dry but still slippery because of worn surfaces, sloping or ramped surfaces, fallen leaves or pine needles (ie - Marsh Overlook at Morningside Nature Center) or similar circumstances. Finally, there are many trip hazards. These include uneven surfaces which are inherent to wood decks because of natural twisting and warping, repairs with wood decking of different cross section (ie - Bivens Arm Nature Park) or nails that stick up from the surface.

**Environmental Issues:** All existing P.T. posts are directly buried in the ground as well as a couple of locations where P.T. posts and/or creosote poles are buried in marsh/wetland areas (ie - Bivens Arm Nature Park and Marsh Overlook at Morningside Nature Center). A solution to this when replacing the structure is to install concrete footings with stainless steel post bases and the P.T. wood posts totally out of the ground. This would be more environmentally friendly over time; however, it would substantially increase the cost of construction because of the need for additional bracing to the structure, the stainless steel hardware, the addition of a new trade and the complication of mixing and pouring concrete in remote areas or under water. (Note that many of these facilities were built prior to EPA standards or environmental issues being a concern).

**Other:** There are other miscellaneous items at these park facilities that require maintenance and future replacement including wood fencing, garden edging, gardens, fountains, retaining walls, gym sets, freestanding benches, trash receptacles, sheds, pergolas and storage boxes. Money should also be budgeted for these items.

# PHOTO DOCUMENTATION

# Alfred A. Ring Park

# Alfred A. Ring Park



## ALFRED A. RING PARK



WELCOME TO  
ALFRED A. RING PARK:  
HERE YOU CAN  
DISCOVER THE BEAUTY  
AND DIVERSITY OF THE  
CREEK AND FOREST  
HABITATS AS YOU WALK  
ALONG THE TRAILS AND  
BOARDWALK. THERE  
ARE MANY PLACES TO  
STOP AND SIT  
COMFORTABLY, TO  
OBSERVE, AND TO  
LISTEN TO THE SOUNDS  
OF NATURE.  
ENJOY YOUR VISIT.

TO ENHANCE YOUR  
ENJOYMENT OF THIS NATURE  
PARK, WE ASK THAT YOU  
OBSERVE THE FOLLOWING:

- NO SMOKING
- NO BIKES ON TRAILS
- NO ALCOHOLIC BEVERAGES
- PETS ON LEASHES ONLY  
IN DESIGNATED PET WALK AREAS
- NO FISHING
- NO COLLECTING PLANTS, PLANT PARTS  
OR OTHER SAMPLES

### PARK HOURS

7AM - 8PM MAY 1 - OCT 31  
7AM - 6PM NOV 1 - APR 30

**CITY OF GAINESVILLE**  
**DEPARTMENT OF RECREATION & PARKS**  
**NATURE OPERATIONS DIVISION**



# Alfred A. Ring Park



TYPICAL BOARDWALK VIEW - GOOD CONDITION

NOTE: P.T. POSTS DIRECT BURIED INTO GROUND

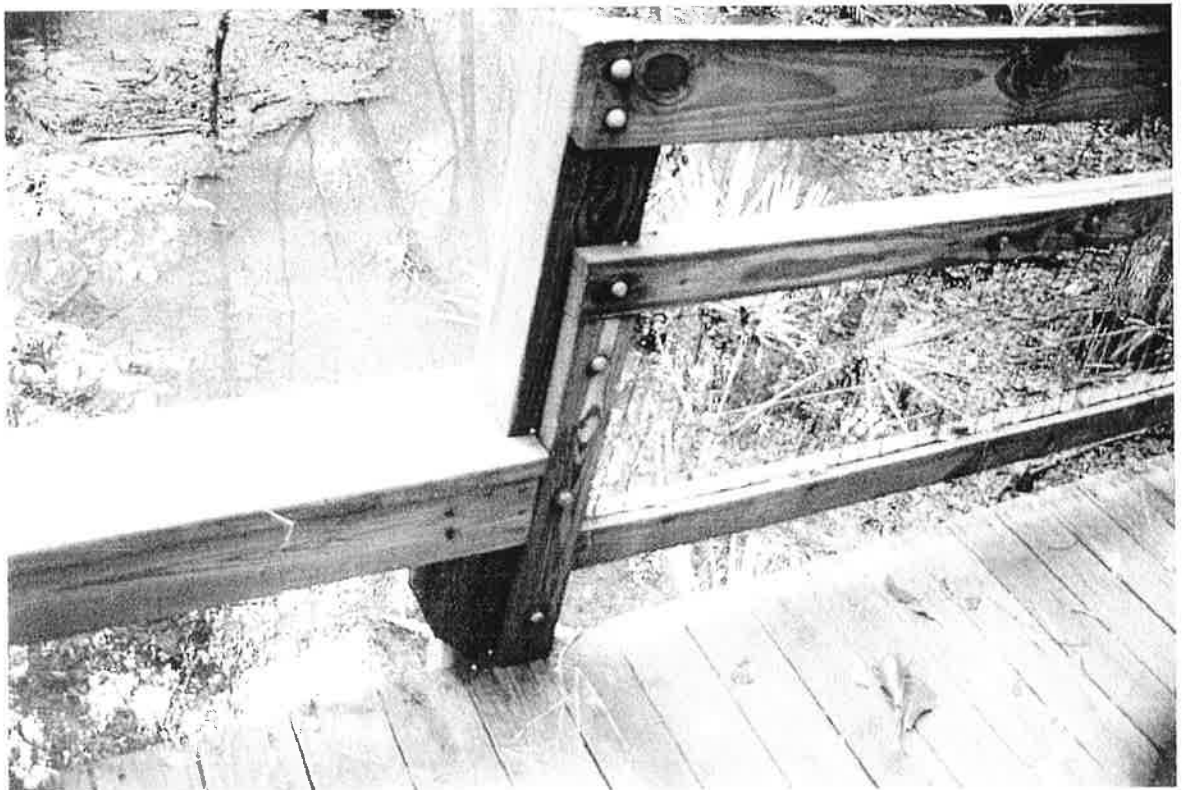


# Alfred A. Ring Park



TYPICAL BOARDWALK VIEW

NOTE GALVANIZED BOLTS AND NAILS IN GOOD REPAIR



# Alfred A. Ring Park



NOTE GOOD CONDITION OF DECKING AND NAIL FASTENERS

# **Bivens Arm Nature Park**

# Bivens Arm Nature Park



PAVILION - NOTE GROWTH ON ROOF AND MINOR DECAY WHERE THE POSTS MEET THE GROUND

NOTE ROTTING ROOF SYSTEM

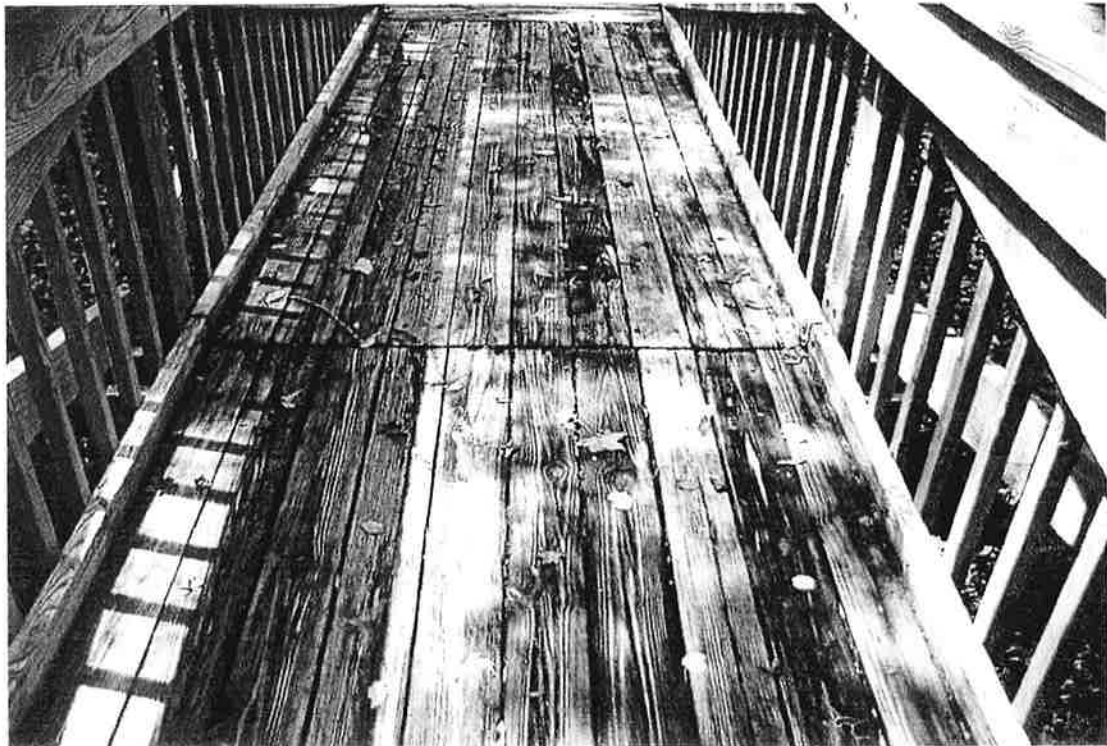


# Bivens Arm Nature Park



RECENTLY REPAIRED BOARDWALK

EXISTING BOARDWALK IN FAIR CONDITION WITH RECENTLY REPLACED RAILINGS



# Bivens Arm Nature Park



TYPICAL VIEW OF BOARDWALK

NOTE DIRECT BURIED POSTS



# Bivens Arm Nature Park



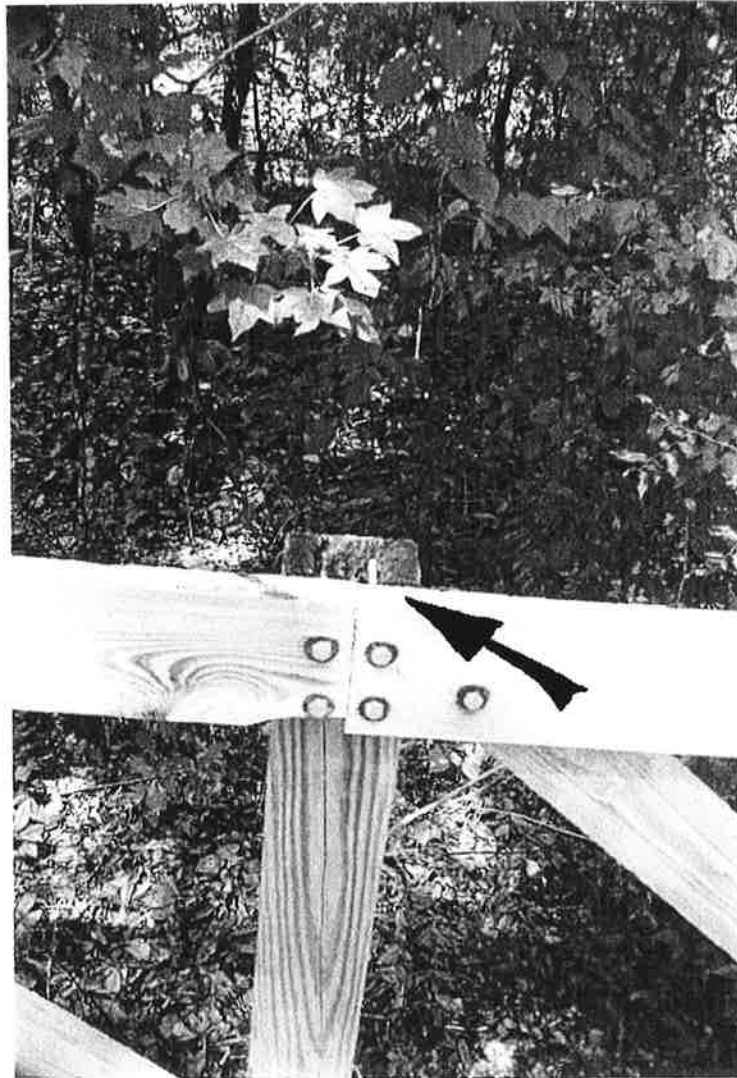
NOTE ROTTING POST CAPS AND DIRECT BURY OF POSTS INTO WETLAND

NOTE REPAIRS INTERMIXED WITH EXISTING DECKING. NOTE THAT NEW DECKING IS RECESSED ABOUT 1/2" AND CAN RESULT IN TRIP HAZARD. RECOMMEND INSTALLATION OF SIGNS.





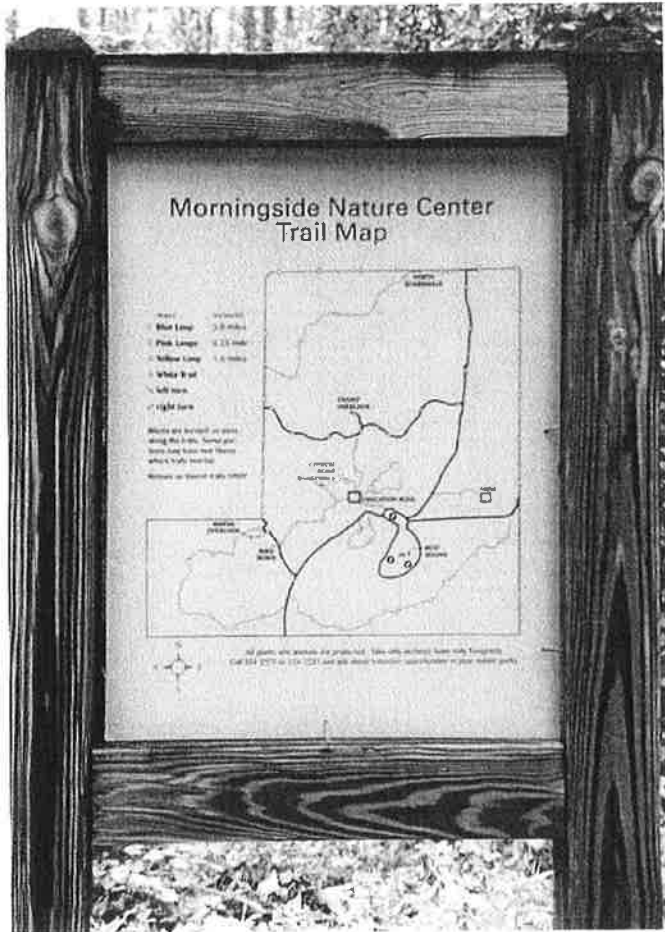
# Bivens Arm Nature Park



NOTE DECAY OF POST CAP. A TAPERED TOP WOULD HELP PREVENT THIS.

# Morningside Nature Center

# MORNINGSIDE NATURE CENTER



TYPICAL VIEW OF CYPRESS DOME BOARDWALK. NOTE "SLIPPERY WHEN WET" SIGN DUE TO MOLD GROWTH.



# MORNINGSIDE NATURE CENTER



VIEW OF MARSH OVERLOOK

NOTE DIRECT BURIED CREOSOTE POLES AND P.T. POSTS IN WETLAND



# MORNINGSIDE NATURE CENTER

TYPICAL BENCH DETAIL



TYPICAL BOARDWALK VIEW. NOTE TWISTING AND WARPING OF DECKING.

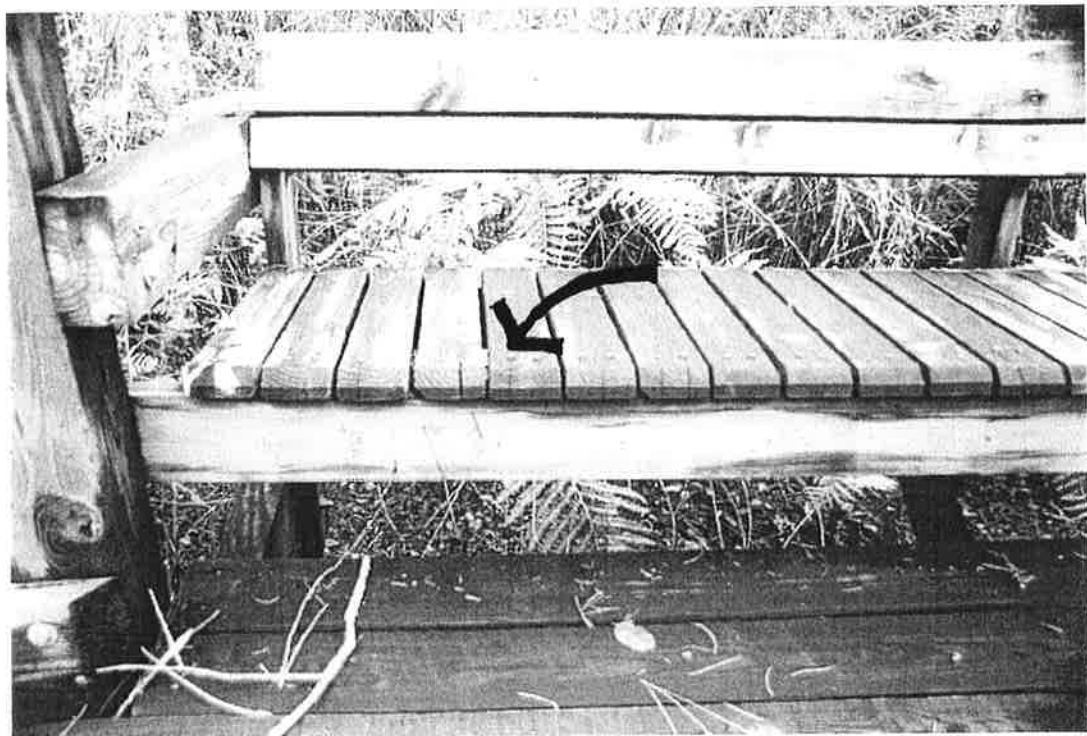


# MORNINGSIDE NATURE CENTER



NOTE DIRECT BURIED P.T. POSTS

NOTE NAILS BACKING OUT AND MOLD MAKE SITTING ON BENCH UNDESIRABLE



# MATERIAL LITERATURE

# Pressure Treated Lumber



## Georgia Pacific CCA Pressure Treated Lumber LIFETIME LIMITED WARRANTY

### Who is covered:

This warranty covers the original home owner, who is the owner or first occupant of a residence at the time Georgia-Pacific (G-P) CCA pressure treated lumber (G-P treated lumber) is installed as a part of the structure.

### What This Warranty Covers:

We warrant that all G-P treated lumber (including Southern Gold \* and Southern Gold Plus\*) will not decay or suffer termite damage to the extent that this damage makes it unsuitable for its intended use, provided that it is installed in a residential structure in accordance with G-P use guidelines and proper building practices.

### Duration of Warranty Coverage:

This warranty applies long as the original homeowner owns.

### What Is Not Covered:

We do not cover damage to the lumber other than from termites and decay. Warping, twisting, splitting, checking or other changes in the shape or appearance of the lumber are not covered by this warranty, nor is any form of damage to lumber used in foundation systems, piling pole, or heavy timber type residential construction, lumber immersed in water, used as fence posts, stakes or in similar applications, or used in anything but residential construction.

### What We Will Do:

We will provide replacement material for any which is damaged. We will not cover removal, installation or labor costs.

### What You Must Do:

If you have a problem caused by decay or termites, notify us within 30 days of the discovery and before you make any alteration or repair to the structure. To arrange for an inspection, notify us at:

Georgia - Pacific Corporation, Lumber Division  
133 Peachtree Street, N.E.  
Atlanta, Georgia 30303

You must be able to provide proof of purchase of the G-P treated lumber involved in the problem, and the proof that the lumber involved in the problem was treated and distributed by G-P.

### Also:

THIS WARRANTY STATES THE ENTIRE LIABILITY OF G-P WITH RESPECT TO THE PRODUCTS NAMED ABOVE THE DURATION OF ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR USE ARE LIMITED IN DURATION OF ANY EXPRESS WARRANTIES STATED HEREIN. UNDER NO CIRCUMSTANCES WILL G-P BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF NEGLIGENCE, TORT, BREACH OF WARRANTY, CONTRACT, STRICT LIABILITY, OR ANY OTHER BASIS, AND SUCH DAMAGES ARE SPECIFICALLY EXCLUDED HEREIN.

Some States do not allow limitations on how long an implied warranty lasts and for the conclusion of incidental or consequential damages, so the above stipulations or exclusions may not apply to the Homeowner. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.



Georgia•Pacific

## Maintenance and Handling Tips

### Is pressure treated wood maintenance free?

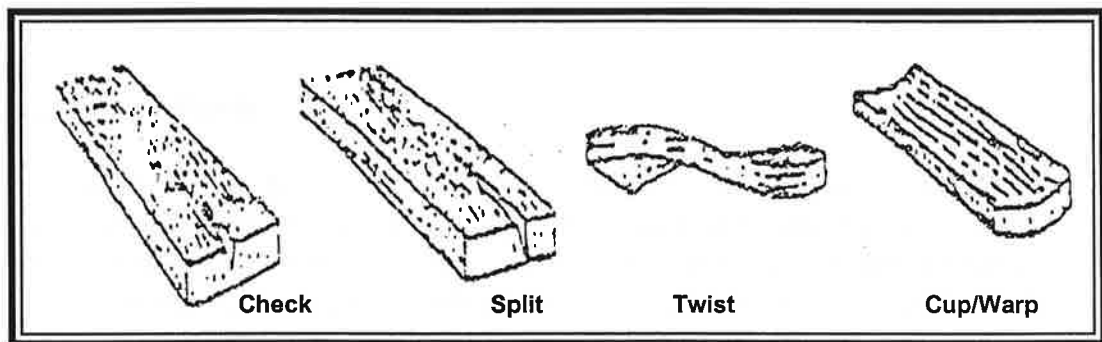
Absolutely not. For years, the treated industry has promoted the fact that pressure treated wood will last from 30 years to a lifetime. Unfortunately, what they have not said is that left unmaintained, the products appearance will dramatically deteriorate after just a couple of years.

As discussed in the Life Guard™ session , the continuous changes in weather conditions are extremely harsh on pressure treated wood. The consumer must be informed that a maintenance plan needs to be developed and geared to combat the problems caused by water absorption and water loss, mildew growth, and discoloration of the wood due to the sun's ultraviolet light. All of these maintenance problems mentioned above are weather related. The degree to which a deck or outdoor project is affected by them depends on many factors, including general climate conditions (such as normal precipitation, humidity, etc.) location in a yard ( with regard to direct sun exposure, foliage coverage, etc.), as well as level of general use. It is important to note that the Pro-Wood, pressure treatment does not increase the likelihood that a deck or outdoor project will develop these natural defects to any greater degree that the same material left untreated. These weather related defects are beyond the control of the pressure treatment process. To effectively combat these maintenance concerns, it will be up to you to instruct the consumer to follow a preventative maintenance plan.

### SWELLING AND SHRINKING

Continuous water absorption and water loss in the wood used for a deck or outdoor project will cause its normal defects to surface. The most common are checking, splitting, twisting, cupping/warping (see illustration J).

#### Illustration J



## **Creosote**

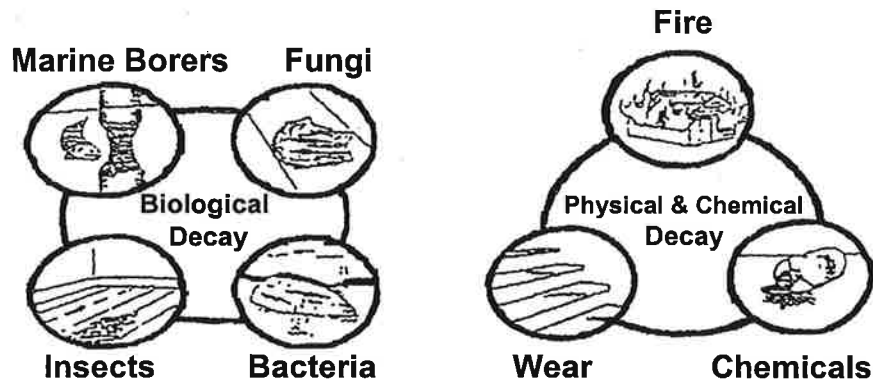
During the last 2000 years, many chemicals have been tried as a wood preservative. The earliest successfully used were various tar oil derivatives of which the most important in terms of industrial utility has been creosote.

This black, oily liquid comes from the tar produced during carbonization of bituminous coal. Wood treated with creosote is subjected to both pressure and heat.

This treatment is highly effective. In case of marine pilings and railroad ties taken up after a century of service, they were found to still exhibit no decay. Wood treated with creosote, however, has several well known drawbacks: It can stain clothing and adjacent building materials, its odor is generally considered unpleasant, its residuals are poisonous to growing plants, and it cannot be successfully painted.

# Decay of Wood

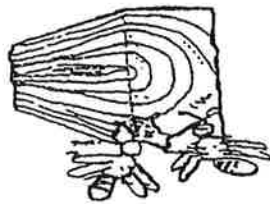
What can destroy wood?



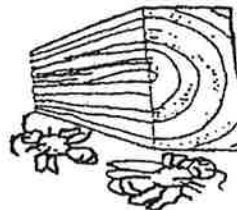
**Illustration A**

**Wood deterioration: Biological, physical, and chemical**

By impregnating fibers with preservative, wood is eliminated as a food for fungi, termites and other insects, marine borers and bacteria. Pressure treating should be specified whenever conditions exist where lumber will be in direct contact with water, the ground or where moisture content will exceed 20%. This includes sills, plates, furring strips in contact with foundations as well as fascia, decks, porches, balconies, fences and lattice work exposed to weather.



**Untreated**



**Treated**

**Illustration B**

## How long will it last?

Treated wood can be expected to keep its strength for at least 30 years whether used indoors or out. In fact one expert in the field says, "Since there has been no loss of treating chemicals (after 30 years), we estimate the life of properly treated wood will exceed 100 years." It is, however, important to ask for the right treatment for the end use you have in mind. This is expressed in terms of "retention" of preservative.

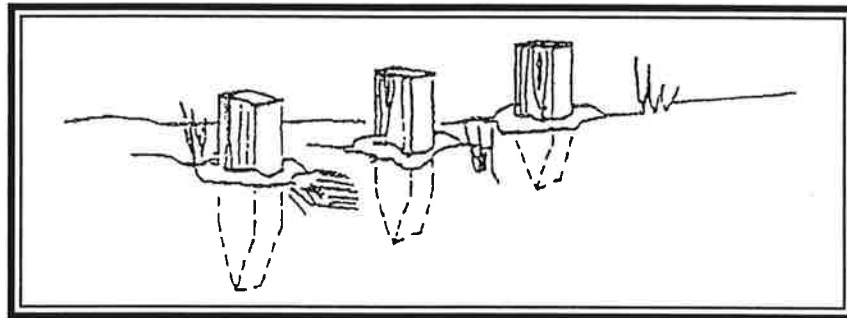
### Stake Tests

For many years, the Forest Products Laboratory of the USDA's Forest Service has conducted tests on southern pine stakes for resistance to decay and termites. Generally, these stakes are 2 x 4 x 18 inches in size, both untreated and treated by various processes including non-pressure treatments with a wide variety of chemicals.

Stakes are driven in the ground halfway, then checked periodically for damage by decay fungi and insects (see illustration F).

The Laboratory's latest progress report after tests running from 31 to 36 years, states "...the formulations containing chromated copper arsenate are better performers, with no failures with retentions of 0.29 pcf or higher." All untreated control stakes tested alongside were destroyed over periods ranging from only 1.8 to 6 years.

### Illustration F



## **MILDEW GROWTH**

Whenever wood including pressure treated is constantly exposed to moist or humid conditions, it will mildew. This results in an unsightly appearance. The consumer preventive maintenance plan will need to include cleaning his/her project with a cleaner containing a mildewcide. This will ensure that as the effectiveness of the Pro-Wood mold inhibitor declines over time, the deck or outdoor project will remain bright and attractive. Remember the focus here is on the appearance and not decay, because all Pro-Wind pressure treated wood has a Lifetime Limited Warranty against fungal decay.

## **ULTRAVIOLET PROTECTION**

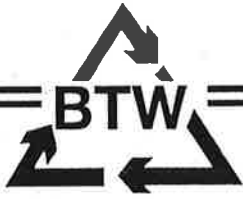
Without any preventive steps taken to block the sun's ultraviolet rays, the surface cells of the wood on a deck or outdoor project will begin to discolor to the familiar weathered gray. Although some may prefer this, others won't. In order to maintain the greenish tint of pressure treated wood, the consumer will need not only to clean/brighten the wood periodically, but also to choose a water repellent finish with an ultraviolet stabilizer. The stabilizer will not prevent eventual discoloration, but will slow down the process. Periodic re-application of a UV stabilizer will help in this effort over an extended period of time.

Promoting a preventive maintenance plan to the consumer makes sense. It allows the store to cross merchandise in order to sell cleaners and sealants. Plus, long term every consumer will be better satisfied with the finished project if its appearance is maintained. The key is to communicate the message of necessary maintenance at the point-of-purchase, so that the customer is not disappointed in the product once it is no longer just components but is a finished project.

## **Is special handling required?**

Although termites, fungus and destructive micro-organisms detest CCA pressure treated wood is clean, emits no fumes and is non-irritating to the touch. The Consumer Information Sheet (see page 15) outlines specific handling tips. Basically, consumers should exercise the same care that is recommended when they work with any wood. For example, when sawing a consumer should wear safety glasses and a dust mask. There is only one unique precaution: burning treated wood releases the CCA bond with wood cells, which makes it important that the consumer dispose of scraps and sawdust with landfill trash - not in a fireplace or bonfire.

# BTW Industries, Inc.



# INDUSTRIES, INC.

## RECYCLED PLASTIC LUMBER

### Looks Like Wood, But Out-Performs it in Many Ways



- It is maintenance free
- Will not absorb moisture, rot or corrode
- Because the colors are molded in, it never needs to be painted or stained
- It can be worked just like wood, with ordinary tools, nailed, screwed, drilled, sawed, etc.

- Will not crack, splinter or chip
- Resists insects, mildew, saltwater, animal waste and most organic chemicals
- No harmful by-products generated during processing.

**IT'S A DURABLE, SAFE, AND ENVIRONMENTALLY SOUND MATERIAL THAT WILL LAST FAR LONGER THAN ORDINARY LUMBER AND IS WARRANTED AGAINST NORMAL WEAR & TEAR FOR 50 YEARS**

### ***SAVE MONEY AS WELL AS THE ENVIRONMENT***

BTW products are extremely cost-efficient. According to research conducted by the University of Florida, on behalf of the Florida Department of Transportation, the long life and virtually zero maintenance requirements of our products make them far more economical than the products they are intended to replace. This saves a considerable amount of money over the long term. In addition, they complete the "recycling loop" by utilizing plastic waste that would have been sent to landfills or incinerators, with usable products for our roads, parks, beaches and marinas.

When you consider all these factors, you will understand why it makes dollars and sense to consider BTW products in your plans. For additional details and prices, please contact:



**MAIN OFFICE - MAILING ADDRESS**  
3939 HOLLYWOOD BLVD. (# 3 B)  
HOLLYWOOD, FL 33021  
TEL: 954 - 962-2100  
FAX: 954 - 963-4778



**MANUFACTURING FACILITIES**  
17611 EAST STREET  
NORTH FORT MYERS, FL 33917  
TEL & FAX: 941-731-1200

E-Mail: [BTW@webtv.net](mailto:BTW@webtv.net)  
Visit our website at: <http://www.qplanet.net/BTW>



FLORIDA LUMBER PRICE LIST

**BTW INDUSTRIES, INC.**

"BTW" BETTER THAN WOOD

RECYCLED PLASTIC LUMBER



3939 HOLLYWOOD BLVD. (3B)  
 HOLLYWOOD FL 33021  
 Telephone: 954-962-2100  
 Toll Free: 1-888-685-7570  
 Fax: 954-963-4778  
 e-mail: BTW@webtv.net  
 Website: <http://qplanet.net/BTW>

**COLORS:**  
 GRAY  
 REDWOOD  
 BLACK (\*in black only)  
 others at special prices  
 \*\* FDOT Spec. - Full Size

ALL PRICES FOB  
 NO. FT. MYERS, FL

MANUFACTURED  
 USING COMMINGLED  
 POST-CONSUMER  
 RECYCLED PLASTICS

6/1/97 SUBJECT TO  
 CHANGE WITHOUT NOTICE  
 Minimum quantities may apply

Nominal Size, in.	Length, ft.	Price, \$/ea.
5/4 x 6	8	\$15.60
5/4 x 6	10	\$17.40
5/4 x 6	12	\$19.10
5/4 x 10	12	\$33.95
2 x 2	6	\$4.00
2 x 2	8	\$5.40
2 x 2	10	\$7.20
2 x 2	12	\$8.15
2 x 3	10	\$8.45
2 x 4	6	\$9.60
2 x 4	8	\$9.80
2 x 4	10	\$10.00
2 x 4	12	\$17.50
2 x 4	16	\$23.50
2 x 6	6	\$8.75
2 X 6	8	\$13.85
2 x 6	10	\$14.60
2 x 6	12	\$26.50
2 x 6	16	\$35.30
2 x 8	6	\$19.15
2 x 8	8	\$23.65
2 x 8	10	\$29.50
2 x 8	12	\$35.40
2 x 8	16	\$47.30
2 x 10	6	\$24.00
2 x 10	8	\$29.65
2 x 10	10	\$37.10
2 x 10	12	\$44.40
2 x 10	14	\$51.85
2 x 10	16	\$59.15
2 x 10	18	\$67.10
3 x 10	6	\$36.00
3 x 10	8	\$47.95
3 x 10	10	\$54.60
3 x 10	12	\$65.50
3 x 10	14	\$76.45
3 x 10	16	\$87.60
3 x 10	18	\$98.30
3 x 12	8	\$58.20
4 x 4	6	\$13.25
4 x 4	8	\$20.90
4 x 4	10	\$21.90
4 x 4	12	\$34.20
4 x 6	10	\$31.55
5 x 5	8	\$41.40
5 x 5	12	\$62.15
5 x 5	16	\$82.80
6 x 6	8	\$51.10
6 x 6	12	\$77.75
6 x 8*	8	\$59.40
2" diam. round	10	\$7.25
3.5" diam. round	8	\$13.45
3.5" diam. round	10	\$16.80
4" diam. round*	6	\$19.90
4" diam. round**	8	\$18.75
4" diam. round*	12	\$39.70
5" diam. round	10	\$28.60
6" diam. round*	6	\$51.65
6" diam. round*	8	\$68.90
6" diam. round*	12	\$103.35

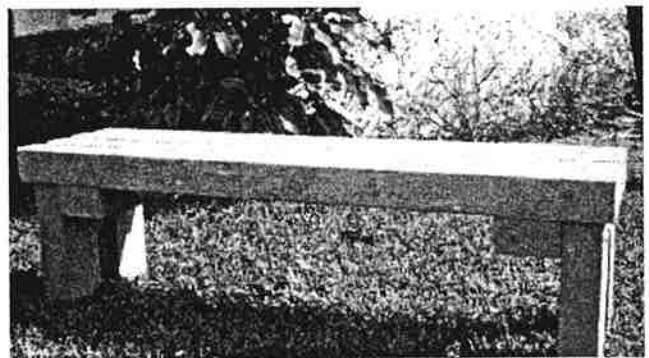
# BTW FABRICATED PRODUCTS

**SHIPPING:** READY TO ASSEMBLE WITH GALVANIZED HARDWARE  
**OPTIONS:** STAINLESS STEEL HARDWARE, ASSEMBLY.  
**COLORS:** ASH-GRAY AND REDWOOD

- PICNIC TABLES:** ALL RECYCLED PLASTIC "A" FRAMES. 6 FT. HANDICAPPED ACCESS, 7 FT.
- PARK BENCHES:** ALL RECYCLED PLASTIC BASES, 5 SLATS.  
 5 FT: 2 BASES                      6 FT: 3 BASES
- MALL BENCHES:** ALL RECYCLED PLASTIC, 5 FT. AND 6 FT.
- CAR STOPS:** FOR PARKING LOTS, PRE-DRILLED, 6 FT. (NO HARDWARE)  
 AVAILABLE IN GRAY AND BLUE (HANDICAPPED).

## PLASTIC LUMBER - IN MANY NOMINAL SIZES

NOMINAL SIZES, IN.	STANDARD LENGTHS, FT.
2 X 3	10'
2 X 4	10'
2 X 6	6', 10'
4 X 4	6', 10'
4 X 6	10'
2" diam.	10'
3.5" diam.	8', 10'
4" diam. (full size: F-DOT spec.)	8'
5" diam.	10'



WE RESERVE THE RIGHT TO CHANGE PRODUCT AVAILABILITY WITHOUT NOTICE

### OTHER PRODUCTS AVAILABLE BY SPECIAL ORDER

BETTER THAN WOOD™ Plastic Lumber is made using Florida commingled post-consumer waste. Due to variations in raw material, from green soft drink bottles to blue detergent jugs and yellow egg cartons, the color shades and texture will have some variations. The entire mix can have a speckled appearance due to commingled Nos. 1 - 7 plastic products. The colors are permanent, throughout the product, and painting is not advised. Plastic Lumber is recommended for the surface of walkways, docks, decks, and piers, for railings, and for outdoors furniture. Engineering data and Material Safety Data Sheets available on request. Always use a Professional Engineer to determine proper usage in structural applications. Stringers are recommended each 18"-24", and free unsupported spans of over five feet are not advised. Plastic lumber can be cut with saws (carbide tipped blades preferred), drilled, screwed, nailed and stapled. The use of adhesives and paint is not recommended. Please read BTW's technical literature, available on request, before specifying or using product.

ALWAYS STORE PLASTIC LUMBER FLAT, PROPERLY SUPPORTED, TO AVOID DISTORTION

# Partial List of Customers

ACE HARDWARE  
ALACHUA COUNTY, FL  
ALLSTATE PROPERTIES  
ARVIDA CORP.  
ASSOCIATED MARINE CO.  
AUBURNDALE, FL  
AVATAR DEVELOPMENT CO.  
BAY COUNTY ENERGY SYSTEM  
BAY HARBOR ISLAND, FL  
BEL-AIRE GOLF CLUB  
BOCA RATON, FL  
BP OIL  
BREAKWATERS CONDO  
BROOKSVILLE, FL  
BROWARD COUNTY SCHOOLS  
BROWARD COMMUNITY COLLEGE  
BROWARD COUNTY, FL  
BROWNING FERRIS (BFI)  
BUILDERS SQUARE  
CAROWIDES PARK, NC  
CARY, NC  
CATAFUMO CONSTRUCTION CO.  
CENTURY VILLAGE D.B.  
CHANIN COMPLEX  
CHARLOTTE COUNT, FL  
CHARTER GLADES HOSPITAL  
CITRUS COUNTY, FL HRS.  
CLAY COUNTY, FL  
COLONIAL COMMUNITY SCHOOL  
COOPER CITY, FL  
CORAL SPRINGS, FL  
CYPRESS-FAIRBANKS, TX  
CITY NATIONAL BANK BANK  
DADE COUNTY, FL  
DADE COUNTY SCHOOLS  
DADE COUNTY., FL. METROZOO  
DEERFIELD BEACH, FL  
DEXTER CONSTRUCTION  
EARL SMALL GROWERS  
EDGEWATER, FL  
EVERGLADES HOSPITAL  
EXXON CORPORATION  
FAIRWAYS OF BOCA LARGO  
FEDERAL AVIATION AUTHORITY  
FEND-OFF MARINE  
FLAMINGO GARDENS  
FLEX-MASTER CO.  
FL. DEPT. MGMT. SER.  
FL D.N.R. DEPT.  
FL HOUSE OF REPRESENTATIVES  
FL KEYS COMMUNITY COLLEGE  
FLORIDA ATLANTIC UNIVERSITY  
FLORIDA INTERNATIONAL UNIV.  
FLORIDA DEPT. OF TRANSPORTATION  
FLORIDA D.E.R. DEPT.  
FLORIDA H.R.S. DEPT.  
FLORIDA POWER CORP.  
FLOWERS BAKING CO.  
FORREST PARK, GA  
FORT PIERCE, FL  
FORT LAUDERDALE, FL  
FRANKLIN TOWNSHIP, NJ  
GIANT FOODS OF MARYLAND  
GLADES OF BOCA LARGO  
GOLD COAST BUS BENCH  
GULF BREEZE, FL  
HARRY PEPPER & ASSOCIATES  
HIGHLAND BEACH, FL  
HI-TECH TIMBER PRODUCTS  
HOLIDAY INN - NEWPORT  
HOME DEPOT  
HONEYWELL AEROSPACE  
IDEA HOUSE  
INCA MARINE  
INDIAN ROCKS BEACH, FL  
INDUSTRIAL WASTE (IWS)  
ITW CORP. (SIGNODE)  
J & J CHEMICAL CO  
JACKSONVILLE BEACH, FL  
JOHN PENNEKAMP STATE PARK  
KENNETH CITY, FL  
KILDAY & ASSOC. LANDSCAPE  
L.W. BLAKE HOSPITAL, FL  
LAKE PARK, FL  
LAKE PLACID  
LAUDERHILL, FL  
LEADDEX CORP  
LEE COUNTY, FL  
LIFETIME DOCK & LUMBER  
LOCKHEED AEROSPACE  
LONGBOAT KEY, FL  
LUTHERAN FAMILY SERVICES  
MARYLAND NATIONAL PARKS  
MIAMI SPRINGS, FL  
MIAMI SEAQUARIUM  
MIRAMAR, FL  
MONROE CO., FL  
NATURE CONSERVANCY  
NORTH CAROLINA HIGHWAY  
NORTH MIAMI BEACH, FL  
OAKLAND PARK, FL  
OCALA, FL  
OCCIDENTAL PETROLEUM  
ORANGE COUNTY SCHOOLS  
ORMOND BEACH, FL  
OVERLAND, KS  
OXFORD HUNT CONDO.  
PASCO COUNTY  
PAHOKEE, FL  
PALM BEACH COUNTY, FL  
PANAMA CITY, FL  
PASCO COUNTY SCHOOLS  
PEMBROKE PARK, FL  
PEMBROKE PINES, FL  
PINELLAS COUNTY SCHOOLS  
PLANT CITY, FL  
PLANTATION, FL  
POLICEL DEL PERU  
PORT SAINT LUCIE, FL  
PORT EVERGLADES, FL  
PORT RICHEL, FL  
POWELL MARINE  
PUBLIX SUPERMARKETS  
RANCHO MARGATE M.H.  
REDINGTON SHORES, FL  
REEVES SOUTHEASTERN  
REFRITECNICA MEXICO  
RESTON VA. ASSOCIATION  
REYNOLDS FENCE, NC  
ROAY PALM BEACH VILLAGE, FL  
SABAL CHASE CONDO.  
SAN ANTONIO, FL  
SANIBEL, FL  
SEWIND CONDO  
SEMINOLE COUNTY, FL  
SEVENTEEN GREEN CONDO  
SKIMMERS, INC.  
SOUTHWESTERN SUPPLY  
SPRINGHILL LANDFILL  
ST. PETERSBURG BEACH, FL  
SWERDLOW COMPANIES  
TARPON SPRINGS, FL  
TEXAS EASTMAN CO.  
THUNDERBIRD SWAP SHOP  
TRI-STAR PLASTICS  
TRICE CONSTRUCTION CO.  
TRIPP CONTACTING CO.  
TUPPERWARE CORP.  
U.S. AIR FORCE  
U.S. DEPT. OF LABOR  
U.S. POSTAL SERVICE  
UNIVERSITY OF CENTRAL FLORIDA  
UNIVERSITY OF FLORIDA  
WASTE MANAGEMENT  
WELLEBY CONDO  
WEST MELBOURNE, FL  
WILTON MANORS, FL  
YANKEE TOWN, FL

## SAFETY & USE

BTW products are made using mixed post-consumer waste. The variations in color and appearance are due to the fact that a mixture of all plastics is used, from clear milk jugs, green soft drink bottles, and pink egg cartons to blue detergent containers.

### STORAGE

Always store plastic lumber laying flat to avoid distortion.

### STRUCTURAL SUPPORT:

Plastic lumber made using recycled mixed post-consumer waste is more flexible than wood, and provides less structural support. When building a walkway, place stringers at 18" to 24". Never use more than a five foot unsupported span. Do not use as structural support or where high compression strength is required. Engineering information is available on request.

### BURNING PRECAUTIONS

Plastic lumber burns like all plastics, and can emit hazardous smoke when ignited.

### WORKING PROCEDURES

Plastic lumber can be sawed like wood. Carbide tipped blades are recommended. Plastic lumber can be fastened with nails, screws and staples. Do not use glues or adhesives. All plastic lumber expands and contracts with temperature changes, be sure to allow about 1/8", and drill holes slightly oval to allow expansion.

### FINISHING

The natural color of the product is permanent. Painting and varnishing are not recommended.

## PRECAUTIONS

- Plastic Lumber can be recycled again. Recycle with your mixed plastics.
- Plastic Lumber might emit hazardous fumes when burned in a fireplace or stove. Do not attempt to burn at home.
- While the dust is not hazardous, avoid prolonged inhalation from any dust, and wear a dust mask when sawing.
- When power sawing or machining any product, wear goggles to protect eyes from flying pieces.
- Wash your hands and other exposed areas to remove dust after working with plastic lumber or other materials.
- Prefabricated Tables and Benches are engineered for durability. Follow carefully all assembly instructions.
- Do not clean Plastic Lumber with solvents or polishes. Just wipe with a wet cloth. Do not use paint or varnish.
- To reduce danger of slipping, grooves can be routed in ramps and slopes. Adhesive backed traction strips will not stick well to Plastic Lumber.

THE INFORMATION PRESENTED IS FOR INFORMATION ONLY AND DOES NOT IMPLY ANY WARRANTY OF ANY KIND. THE COMPOSITION OF COMMINGLED POST CONSUMER PLASTIC WASTE IS SUBJECT TO CONSTANT CHANGES AND CANNOT BE GUARANTEED FOR UNIFORMITY



# ENGINEERING DATA

## BTW PLASTIC LUMBER

### DESIGN PROPERTIES

Recycled plastic lumber is a new product in the market. The American Society for Testing Materials (ASTM) does not yet have standard testing procedures for this product. At the request of BTW, a professional engineering firm performed unconfined compressive strength tests on 2" x 2" and 4" x 4" plastic lumber specimens, and flexural strength on 6" x 6" specimens. The full engineering test report is available in BTW's files, and based on these tests the following mechanical properties can be expected:

<u>COMPRESSION</u>			
Nominal Section	Unconfined Compressive Strength, (psi)	Modulus of Elasticity (ksi)	Allowable Compressive Stress (psi)
4 x 4	1840 - 2080	71 - 93	500
2 x 2	2520 - 2810	66-120	600

<u>FLEXURE</u>			
Section Depth	Modulus of Rupture (psi)	Allowable Maximum Stress, (psi)	Modulus of Elasticity (psi)
6"	2360 - 2870	600	162,000

### SHEAR

Allowable shear stress of 40psi recommended for design of flexural members.

### DEFLECTION

Modulus of Elasticity of 162,000 psi recommended for evaluating service level deflections for 2 x 6 stringers supporting decks. Deflection should be limited to L/240 for stringers, and L/360 for boards used for decking. Supports to be placed at five feet on centers.

VARIATIONS IN RECYCLED PLASTIC MATERIALS MIGHT CAUSE DEVIATIONS IN THE MECHANICAL PROPERTIES OF BTW'S PLASTIC LUMBER. USERS MUST CARRY OUT TESTS TO SUPPORT DESIGN ASSUMPTIONS. THE DATA PRESENTED IS FOR INFORMATION ONLY, AND DOES NOT IMPLY ANY GUARANTEE OR WARRANTY OF ANY KIND.

# Typical Properties of Plastic Lumber

## PHYSICAL PROPERTIES

Specific Gravity	0.88 - 1.01
Density, Lbs/Cu. Ft.	55 - 60
Colors	Natural Ash and Redwood
Composition	Made with commingled post-consumer plastic waste
Fillers	None
Foaming Agents	None
Surface	Knurled low-skid finish

## DURABILITY

Expected Lifetime, Ambient Conditions	50 Years
Wear (Actual Usage)	Negligible
Splittiness	Not significant (no grain)
Weather	No adverse effect
Water Absorption	Practically nil
Attack by water (including salt water)	Practically nil
Mildew and Rot	No effect (not attacked)
Insect attack, Red Ants	Red Ant resistant
Insect Attack, Termites	Termite resistant
UV Deterioration	Less than 1% in 3 years Maximum penetration less than 15/1000 inches
Vandalism	Graffiti resistant Carvings removed with hot iron
Nail and Screw Retention	Holds nails and screws 40%-50% better than wood Holding strength improves with time
Skid Resistance	About the same as wood in contact with leather, rubber and bare feet No growth of slime when wet
Use Temperatures	32° to 120°F
Flammability	Self-extinguishing 2 min. after direct flame is removed
Ignition Temperature	Approximately 650°F

## MECHANICAL PROPERTIES

TEST RESULTS CONDUCTED BY A PROFESSIONAL ENGINEERING FIRM ARE PRESENTED SEPARATELY.

NOTE: THE INFORMATION HEREIN WAS OBTAINED PRIMARILY FROM PUBLISHED LITERATURE. SINCE PLASTIC LUMBER IS MADE FROM POST-CONSUMER WASTE, THERE IS NO CERTAINTY THAT THE COMPOSITION REMAINS CONSTANT. THE MECHANICAL PROPERTIES ATTACHED ARE THE RESULT OF ACTUAL TESTING ON A STATISTICALLY SIGNIFICANT SET OF SAMPLES, BUT ARE STILL ONLY REPRESENTATIVE OF PRODUCTION OVER A LIMITED PERIOD OF TIME. DUE TO THE COMMINGLED FEED STREAM, WIDE VARIATIONS COULD EXIST. BTW'S PLASTIC LUMBER IS NOT GUARANTEED FOR STRUCTURAL APPLICATIONS FUMES EMITTED WHEN BURNING MIGHT BE TOXIC. PLEASE SEE MATERIAL SAFETY DATA SHEET.

# Material Safety Data Sheet

## SECTION 1: PRODUCT IDENTIFICATION

PRODUCT: **Plastic Lumber**

CHEMICAL COMPOSITION: Plastics, primarily commingled post-consumer waste. Primary components are listed in descending order: polyethylene, PET, polypropylene, polystyrene, ABS, PVC, miscellaneous other plastics and non-plastic materials.

## SECTION II : HAZARDOUS INGREDIENTS

The plastic materials in the commingled post-consumer waste are considered non-hazardous as defined in 29.CFR1910.1200. Commingled waste may contain small quantities of pigments, anti-oxydants, stabilizers, and slip additives. These ingredients are present in minimal quantities and are usually encapsulated in inert plastics.

HAZARDOUS POLYMERIZATION: Not likely to occur. Stable product.

## SECTION III: HEALTH INFORMATION AND PROTECTION

### NATURE OF POSSIBLE HAZARD

EYE CONTACT: Solid or dust may cause irritation and may scratch eye surfaces. Use proper eye protection when cutting or sawing. Do not rub eyes with dirty fingers.

SKIN CONTACT: Essentially non-irritating to skin at ambient temperatures. Exposure to hot material might cause burns.

INHALATION: Negligible hazard at ambient temperatures. Vapors which may be formed at high temperatures may be irritating. Low order of toxicity. Single exposure to dust is not likely to be hazardous. It is good practice to wear personal respiratory protection if dust created while sawing is not properly ventilated.

INGESTION: Minimal toxicity, low exposure to dust not considered hazardous. Vapors unlikely at ambient temperatures.

### FIRST AID

EYE CONTACT: This product is an inert solid. If in eye, remove as one would any foreign object: rinse with clean water for at least 5 minutes.

SKIN CONTACT: At ambient temperatures, just wash off with running water. For hot product, proper burn treatment is required.

INHALATION: No adverse effects anticipated when used with proper industrial handling procedures. First aid is not required.

INGESTION: No adverse effects anticipated when used with proper industrial procedures. First aid is not required.

### HANDLING PROCEDURES

EXPOSURE: OSHA limits for nuisance dusts as per regulation 29CFR1920.1000 Apply: 5mg/m<sup>3</sup> respirable dust, 15mg/m<sup>3</sup> total dust. ACGIH recommends TWA of 10mg/m<sup>3</sup> nuisance dust.

VENTILATION: Good general ventilation is sufficient. If sawing in confined ares, wear approved dust mask.

SKIN PROTECTION: No special protection required. Do not rub or scratch skin areas covered with dust or dirt. Gloves are recommended to avoid abrasions.

EYE PROTECTION: Wear goggles or other eye protection when sawing, drilling, etc.

## SECTION IV: FIRE AND EXPLOSION HAZARD

FLASH POINT: Flash ignition approximately 650°F.

FLAMMABLE LIMITS: Not applicable

GENERAL HAZARD: Solid material, may burn at or above flashpoint. Airborne dust may explode if ignited. Dense smoke when burned, toxic gases could be emitted when burned.

DUST: NFPA standards 654 and 68 indicate possible explosion hazard due to dust particles. Working areas need proper ventilation, and good housekeeping.

(CONTINUED)

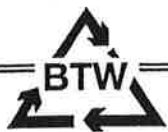
# Take a BTW Fact Test

OUR PRODUCT	YES	NO	YOUR PRODUCT	YES	NO
100% POST-CONSUMER RECYCLED PLASTIC	✓		TREATED WOOD		
Resists Graffiti	✓		Resists Graffiti		
Never Rots	✓		Never Rots		
Life Cycle Minimum 50 Yrs	✓		Life Cycle Minimum 50 Yrs		
100% Maintenance Free	✓		100% Maintenance Free		
Insect Resistant	✓		Insect Resistant		
Not Affected by Oil or Grease	✓		Not Affected by Oil or Grease		
Not Affected by Salt Water - Animal Waste	✓		Not Affected by Salt Water - Animal Waste		
Water Proof & Water Resistant	✓		Water Proof & Water Resistant		
Never Needs Painting	✓		Never Needs Painting		
Will Not Splinter, Crack, Chip or Corrode	✓		Will Not Splinter, Crack, Chip or Corrode		
Does Not Contain Arsenic or Other Harmful Chemicals As Used in Treated Wood	✓		Does Not Contain Arsenic or Other Harmful Chemicals As Used in Treated Wood		
Plastic Lumber is 100% Recyclable and Environmentally Responsible	✓		My Product is 100% Recyclable and Environmentally Responsible		
<b>WE SCORE 100%</b>			<b>WHAT'S YOUR SCORE?</b>		

**NOW, DON'T YOU THINK ITS TIME TO CALL  
BTW FOR ALL THE FACTS?**

**YOU WILL NEVER GO BACK TO WOOD AGAIN!**





**INDUSTRIES INC.**

**RECYLED PLASTIC LUMBER**

**MAIN OFFICE - MAILING ADDRESS**

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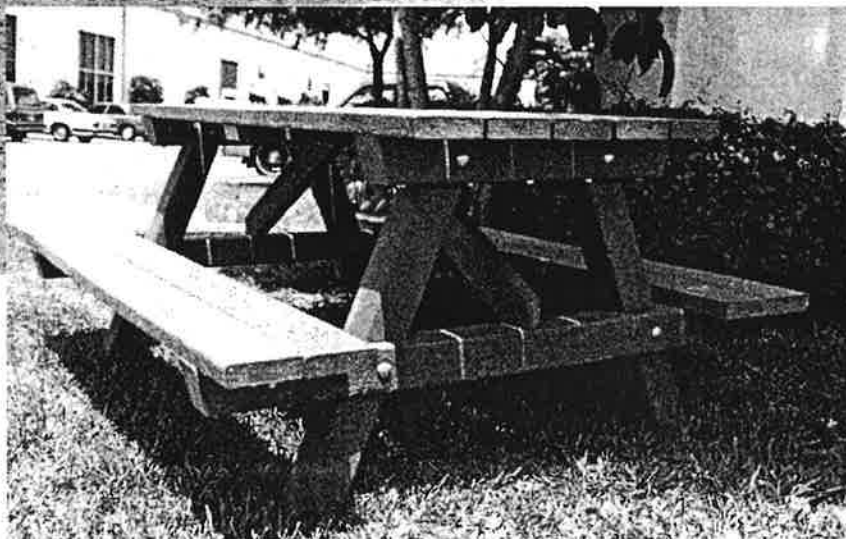
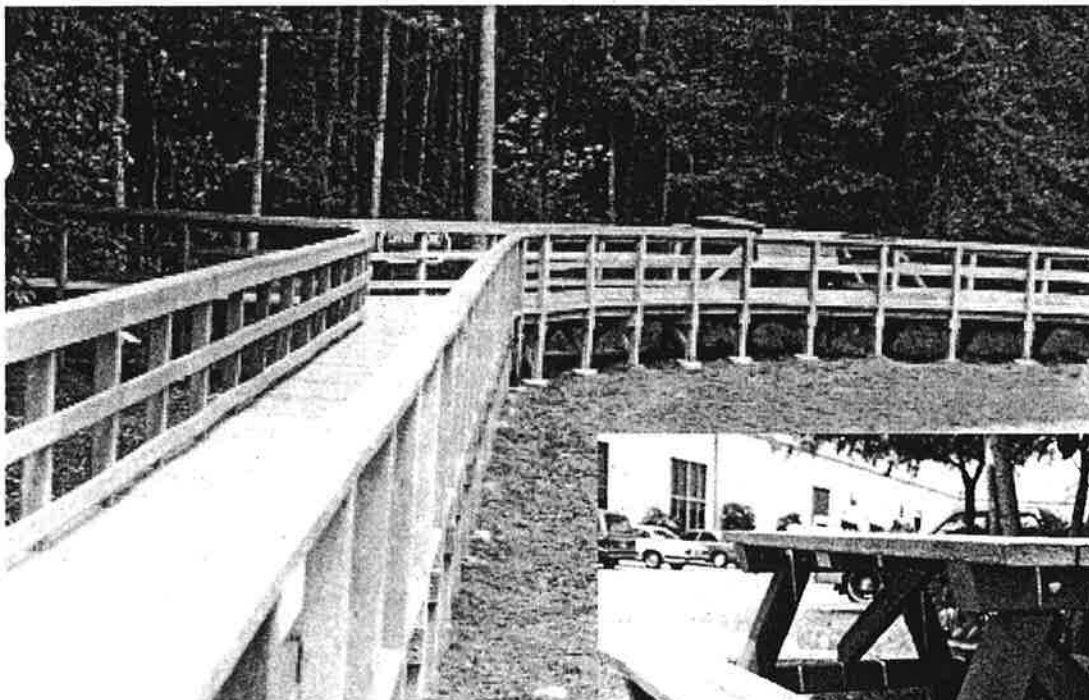
TEL: 954-962-2100

FAX: 954-963-4778

E-Mail: [BTW@webtv.net](mailto:BTW@webtv.net)

Visit our website at:

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**MANUFACTURING FACILITIES**

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NORTH FORT MYERS, FL 33917

TEL. & FAX: 941-731-1200

E-Mail: [BTW@webtv.net](mailto:BTW@webtv.net)

Visit our website at

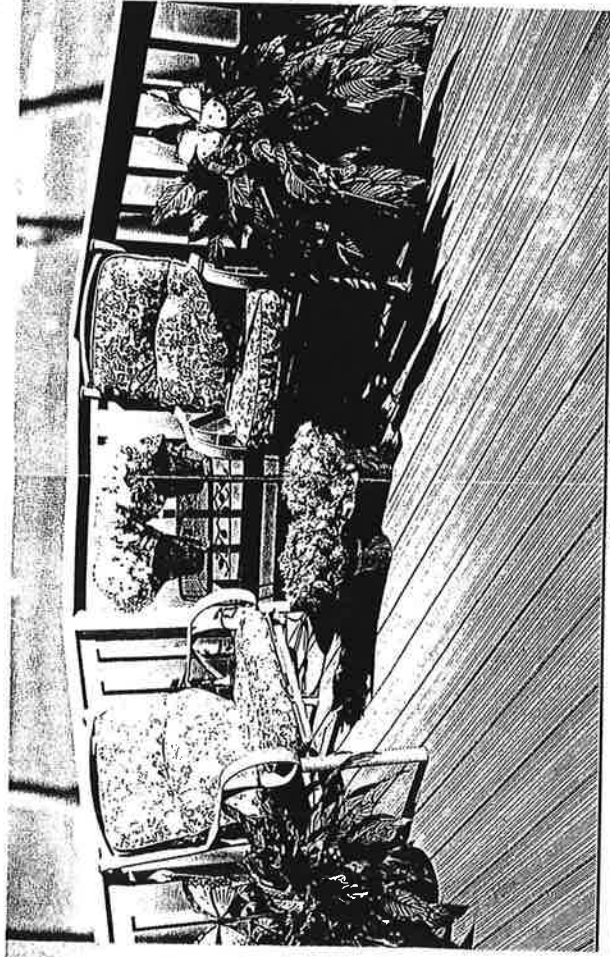
<http://www.qplanet.net/BTW>



PRINTED ON RECYCLED PAPER

# TimberTech

# Weyerhaeuser - Plus



## Engineered To Endure.

- ▶ No sealing or staining necessary
- ▶ No special tools or fasteners needed for easy installation
- ▶ No worries thanks to dimensionally stable materials - and a 20 year limited warranty

WEYERHAEUSER  
**CHOICEDEK Plus**  
*Designer Decking For The New Millennium*

*Expanded Availability*

WEYERHAEUSER  
**CHOICEDEK Plus**  
*Designer Decking For The New Millennium*



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BUILDING FOR THE FUTURE  
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1.800.951.5117

Visit our web site at [www.choicedek.com](http://www.choicedek.com)

*Another Quality ChoiceDek product distributed exclusively by*

**Weyerhaeuser Co.**

IMAGINE  
 THE  
 POSSIBILITIES

*Seamless & Pattern Decks*

*Benches*

*Handrails*

*Accessories & More*

For sales and service please contact:

**ROSES TRUSTWORTHY**

4 MILES N. HWY. 301

WALDO, FL 32694

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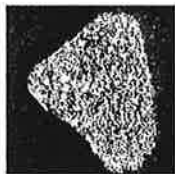
DECK PLANNER (1 SQ. = 1FT.)

WEYERHAEUSER  
**CHOICEDek** *Plus*  
 Designer Decking For The New Millennium

Weyerhaeuser ChoiceDek®  
 Plus is an ultra-modern  
 engineered wood decking  
 product, designed for both  
 beauty and durability.  
 Just put it down and walk  
 away. Years later, it will look  
 as terrific as the day you  
 installed it.  
 And because it's made  
 with recycled resources,  
 it's also good for the  
 environment.

**ChoiceDek Plus Features & Benefits**

- Dimensional stability: moisture proof, will not splinter, crack, swell, deteriorate or rot.
  - Mixture of high density and low density recycled plastics greatly reduce thermal contraction and expansion. A highly stable product.
  - Consistent uniform color throughout, weathering to a uniform driftwood silver color over time.
  - Excellent slip resistant values.
  - Textured growth ring surface provides superior traction, wet or dry.
  - Minimal waste.
  - Patented product (manufactured under U.S. pat. #5,966,800).
- Superior Engineered Design**
- 10 to 20 year limited residential decking warranty against rot, warp, twist and termites.
  - Used in the window and door manufacture for 10 years by several national companies as the substrate to the aluminum threshold and the top and bottom door factory sills because of its dimensional stability and total durability.



Hardwood Fibers



Recycled Plastics



Recycled Plastics

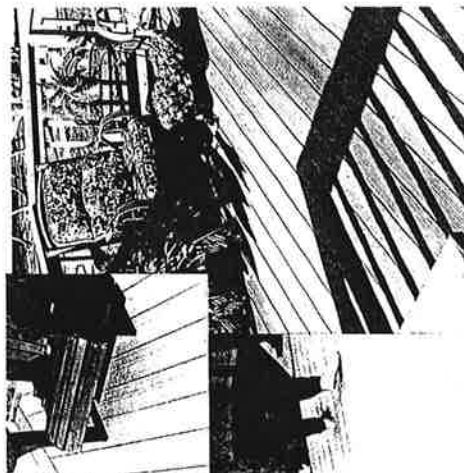


Recycled Plastics



WEYERHAEUSER  
**CHOICEDek** *Plus*  
 Designer Decking For The New Millennium

Applications and designs, limited only by your imagination



Ideal for sundecks



Great for pools

Handrails, steps and fascia trim

**Application Tips**

- Any standard method of deck fastening can be used; screws are not required.
- Galvanized or stainless steel fasteners are recommended.
- You can file edges because edges will not splinter.
- Consistency in material means less waste.
- Installation of deck surface requires only: Circular saw, measuring tape, speed square, file and hammer.
- No staining or finishing required.
- May be painted or stained after it weathers out.

**Superior Engineered Design**

- ChoiceDek Plus has a specially designed ribbed back which allows for easy installation while allowing ventilation between the decking and the solid wood joists helping to prevent rotting from trapped water.
- Tighter, uniform precision tolerances allows for quick installation.
- Available sizes 5/4" x 6" x 12' and 5/4" x 6" x 16'.

Safe, slip resistant and easy on the feel

**ChoiceDek Plus Recommendations**

1. Recommended span/spacing not to exceed 16" on center. (Excessive spacing of joists in excess of 16" will automatically void the product warranty).
2. Cutting - carbide saw blades with less than 20 teeth wear longer and do not heat up easily.
3. Gapping and spacing decking - ChoiceDek Plus should be gapped 1/8" between boards and on ends. If installing in freezing weather gapping should be increased to 1/4" between ends of boards to allow for thermal expansion.
4. Fastening and Nailing - High quality stainless steel or galvanized fasteners are recommended. Do not use regular steel nails or screws in humid conditions as rust can create stains on deck surface. #16d hot dipped casing nails such as Maze #1 - 3091 or Maze small head spiral shank siding nails 3S - 2591 - S work well. Stainless steel trim head screws such as Swancee #7x3" or Scorpion #8x3" work well and will almost disappear when driven flush or slightly counter sunk. When installing balusters and handrails, pre-drilling pilot holes is recommended.
5. Cleaning - Pressure washing will remove most dirt and grease from ChoiceDek Plus using many of the commercially available deck washes. Tannic acid stains from leaves or acorns may require additional hand scrubbing with a brush and cleaning compound (containing oxalic acid) to remove the stain. Many stains can be removed using almost any household cleaners or degreasers such as 409 or TSP. Stubborn stains can be bleached out using Chlorox. Some burns or bad stains may require light sanding.
6. For additional information (including engineering values) please refer to the technical information bulletin on our web site at

WEYERHAEUSER  
CHOICEDEK®  
CLASSIC  
Engineered Quality Decking

Manufactured

under a patented

process utilizing

recycled

heartwood cedar fibers and

recycled polyethylene plastics

to create beautiful

and long lasting decks.

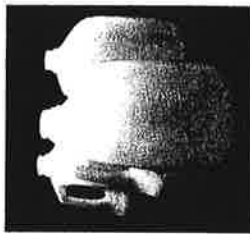
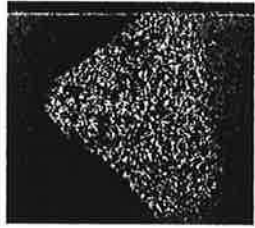
## Features

- Dimensional stability, moisture proof, will not splinter, crack, swell, deteriorate or rot.
- Mixture of high density and low density recycled plastics greatly reduce thermal contraction and expansion. A highly stable product.
- Consistent uniform color throughout, weathering to a uniform driftwood silver color over time.
- Consistent recycled heartwood cedar source, insures consistent quality, and natural redwood color tone.
- Slip resistant values.
- Textured surface provides superior traction, wet or dry.
- Specially designed corrugated back makes it stiffer and lighter to handle without losing any engineering values.
- Patented product (manufactured under U.S. Pat.# 5,596,880).

## Proven Quality

- 20 year limited residential decking warranty against rot, warp, twist and termites.
- 10 year limited residential decking warranty against swelling, delamination, checking and splintering.
- Used in the window and door manufacture for 10 years by several national companies as the substrate to the aluminum threshold and the top and bottom door factory sills because of its dimensional stability and total durability.

How is ChoiceDek Classic made?



WEYERHAEUSER  
CHOICEDEK®  
CLASSIC  
Engineered Quality Decking

Home Owners

Who uses ChoiceDek Classic?



Heartwood Cedar Fibers

Recycled Materials



Jet Ski Owners

Boat Owners



Resort Owners



Pool and Spa Builders

U.S. Government

## Environmentally Responsible

- Utilizing 100% recycled materials.
- The patented extrusion process with the recycled fiber and recycled plastic produce 100% homogeneous plastic/fiber encapsulation throughout the product.
- Fully protected from the core to the surface.
- Fiber and plastics screened, sorted and cleaned to eliminate organic contamination, metal contamination and color variation.
- Safe, user friendly, non-toxic, no chemical leaching, consistent sizes and surface texture.
- Resistant to most chemicals used in household/outdoor environments.

## Easy Installation

- Accepts nails, screws and non-water base adhesives like wood and can be worked with standard carpentry tools.
- Superior fastener retention will not reject fasteners when it ages.
- May be painted or stained with oil based products.

## ChoiceDek® Classic Recommendations

1. Recommended span/spacing not to exceed 16" on center. (Excessive spacing of joists in excess of 16" will automatically void the product warranty).
2. Cutting - carbide saw blades with less than 20 teeth wear longer and do not heat up easily.
3. Gapping and spacing decking - ChoiceDek® Classic should be gapped 1/8" between boards and on ends. If installing in freezing weather gapping should be increased to 1/4" between ends of boards to allow for thermal expansion.
4. Fastening and Nailing - High quality stainless steel or galvanized fasteners are recommended. Do not use regular steel nails or screws in humid conditions as rust can create stains on deck surface. #16d hot dipped casing nails such as Maze #T - 3091 or Maze small head spiral shank siding nails 3S - 2591 - S work well. Stainless steel trim head screws such as Swanee #7x3" or Scorpion #8x3" work well and will almost disappear when driven flush or slightly counter sunk. When installing balusters and handrails, pre-drilling pilot holes is recommended.
5. Cleaning - Pressure washing will remove most dirt and grease from ChoiceDek® Classic using many of the commercially available deck washes. Tannic acid stains from leaves or acorns may require additional hand scrubbing with a brush and cleaning compound (containing oxalic acid) to remove the stain. Many stains can be removed using almost any household cleaners or degreasers such as 409 or TSP. Stubborn stains can be bleached out using Clorox. Some burns or bad stains may require light sanding.
6. For additional information, visit our website.

**U.S. Plastic Lumber, Ltd.**



**U.S.  
Plastic  
Lumber  
Ltd.**

*Carefree*  
DECKING SYSTEM

*The  
Maintenance-Free  
Alternative*



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2300 Glades Road, Suite 440W  
Boca Raton, FL 33431



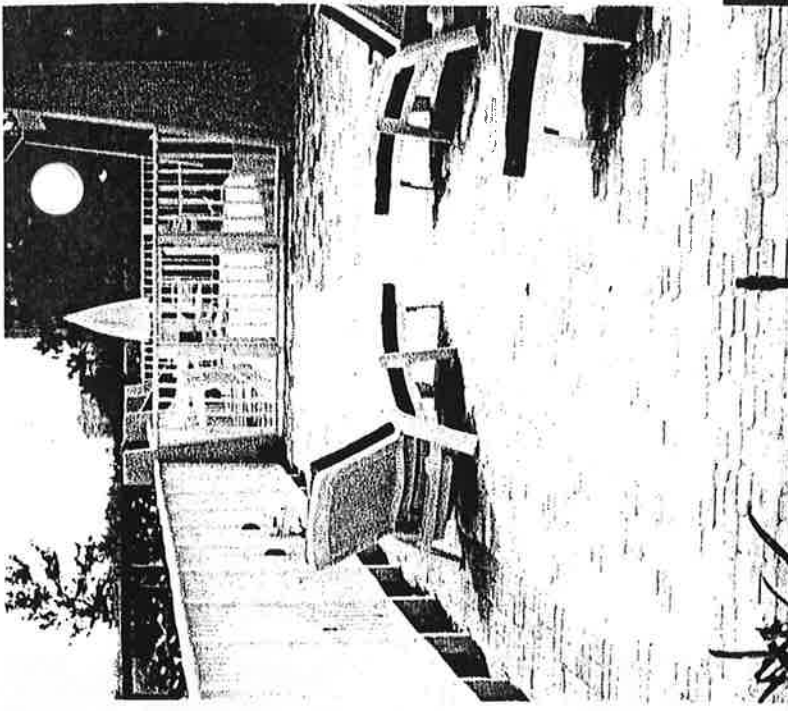
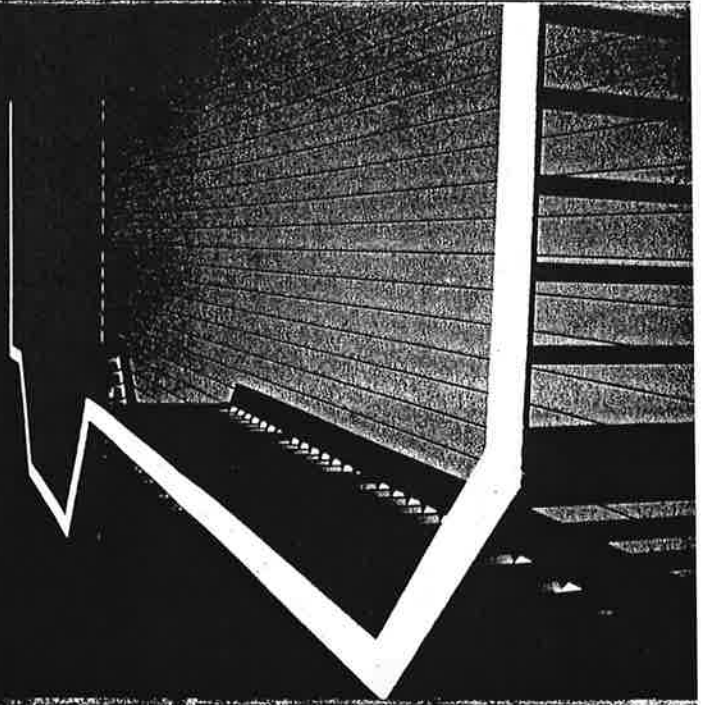
Owning a deck can bring tremendous pleasure. You can immediately enhance your lifestyle with a deck, as it becomes an extension of your home to the outside world. A deck creates a space for you to relax and enjoy nature, family and friends. Unfortunately, decks built with traditional materials like pressure treated lumber require a great deal of maintenance and repair. You end up spending just as much time working on your deck as you do relaxing on it. Who needs that?

there is an alternative

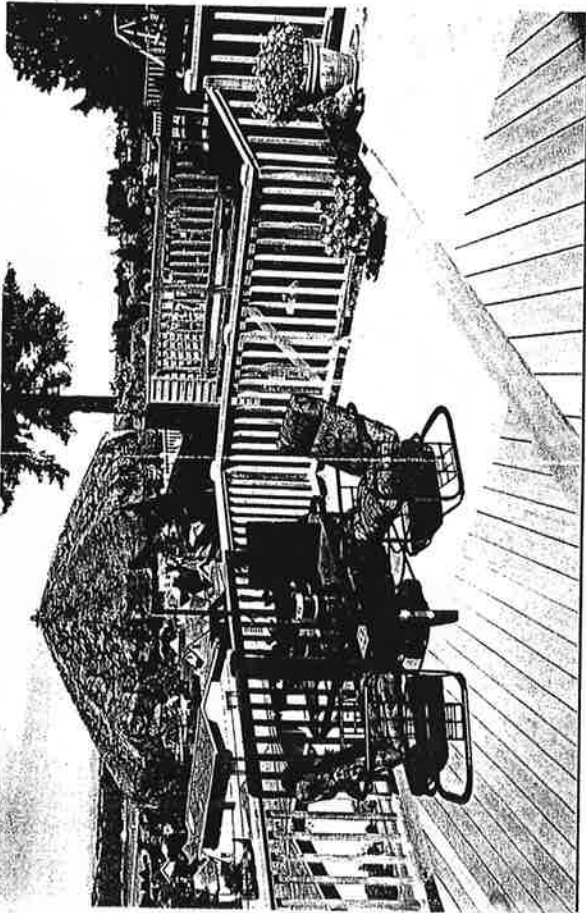
maintenance-free decking



never needs paint, stain, sealer



# Weyerhaeuser - Classic



HOMEOWNERS

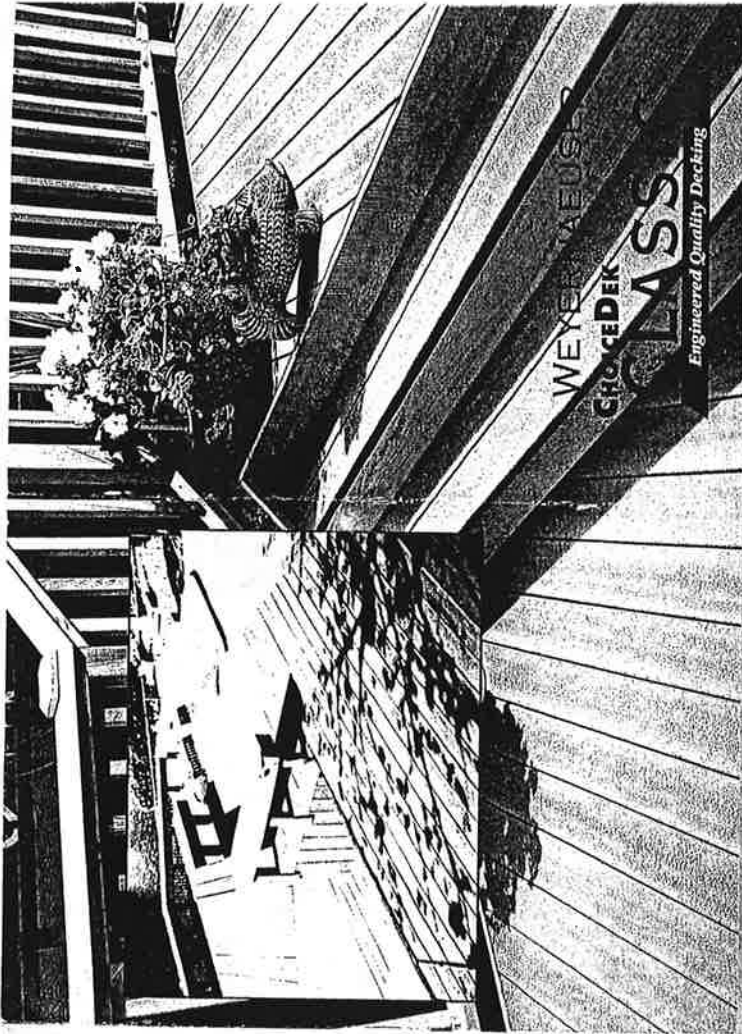
ENJOY THIS DECK

RATHER THAN

MAINTAINING IT!

WEYERHAEUSER  
**CHOICEDEK®**  
**CLASSIC**  
*Engineered Quality Decking*

DECK PLANNER (1 SQ. = 1 FT.)



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THE NEW AND EXCITING

NEXT GENERATION OF

RECYCLED COMPOSITE

D E C K I N G

**A** Weyerhaeuser

PC 1973 4-00

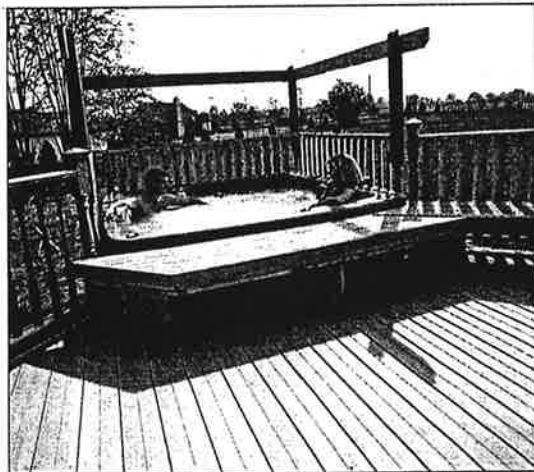
# No Rotting. No Warping. No Splitting. No Sweat.

The beauty of wood with none of the problems or maintenance hassles . . . that's a TimberTech® deck. TimberTech is a revolutionary, engineered composite that's far superior to wood, and far more environmentally friendly because it's made with a proprietary process that converts recycled wood and polymers into strong, moisture-resistant decking. And

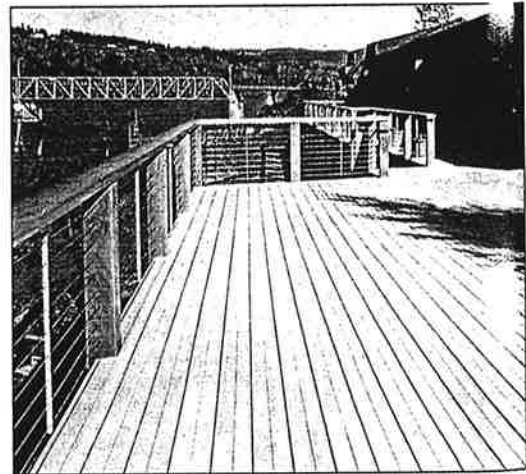
TimberTech gives you a complete decking system including railing, fascia board, and a choice of tongue-and-groove planks for a fastener-

free surface, traditional 2x6 planks, or our TimberTopper™ deck covers for resurfacing weathered wood decks — all to create virtually maintenance-free decks that keep their good looks even after years of exposure to the elements.

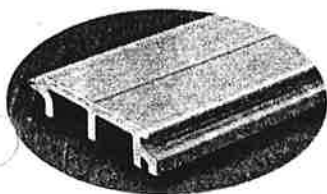
- Won't split, splinter, decay, rot, or warp like wood
- No painting or staining required, although oil-based paints and stains can be applied after approximately 8-10 weeks
- Exceptionally moisture-resistant, no sealer required
- Termite-resistant
- More slip-resistant than wood, even when wet
- Lightens to an attractive driftwood gray (light brown in hot, dry climates)
- † Great for replacing old deck boards
- Easy to install
- Backed by a 10-year limited warranty



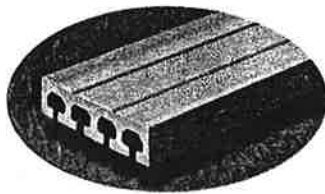
*Designed for use on residential and light commercial exterior decks, TimberTech decking is also an excellent choice around hot tubs and pools because of its exceptional water and slip resistance. No splintering means added safety for bare feet.*



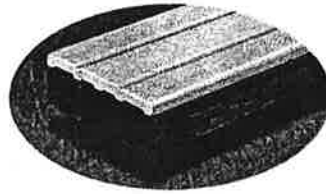
## TimberTech Decking Components



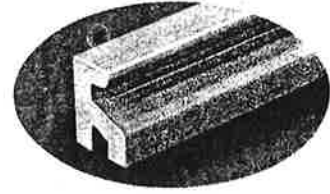
**Tongue-And-Groove Planks**  
12', 16', and 20' lengths



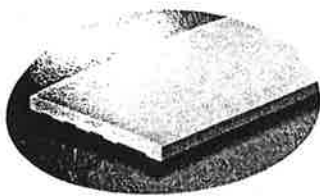
**2x6 Planks**  
12', 16', and 20' lengths



**TimberTopper™ Deck Covers**  
12', 16' lengths



**Starter Strip**  
For use with tongue-and-groove planks, 12' length



**Fascia Board**  
10", 8', and 12' lengths

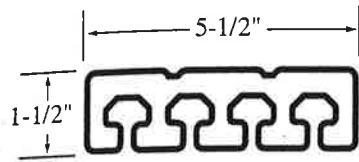


**End Cap**  
1-1/2" height, 6' lengths

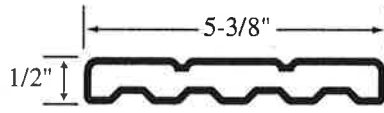


**Rail Kit**  
All components, except fasteners,  
for a complete rail section.

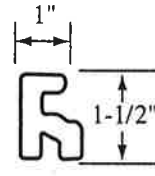
## TimberTech Product Dimensions



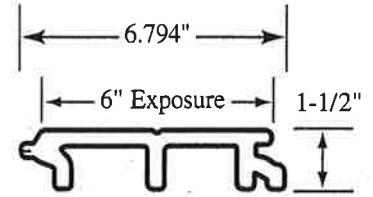
2x6 Plank



TimberTopper™ Deck Covers



Starter Strip



Tongue-And-Groove Plank

## Installation

TimberTech can be cut, drilled, and routed using standard woodworking tools and techniques. For installation, we recommend stainless steel deck screws — 2-1/2" for tongue-and-groove planks, TimberTopper, and fascia, 3" for 2x6 planks — with no pre-drilling required except in extremely cold conditions.

Decks should be sized to eliminate or minimize ripping of planks. TimberTech tongue-and-groove planks provide a full 6" wide surface area, and installed properly, two planks will cover approximately 12-1/4". Each TimberTech 2x6 plank provides a 5-1/2" wide surface area. Be sure to provide a positive slope on the deck to carry water away from the adjacent structure. *For complete installation instructions, call 1-800-307-7780, or visit our web site at [www.TimberTech.com](http://www.TimberTech.com).*

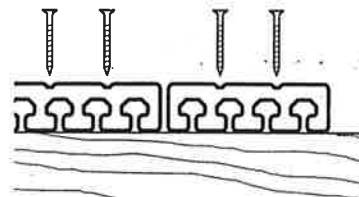
## Installation Details



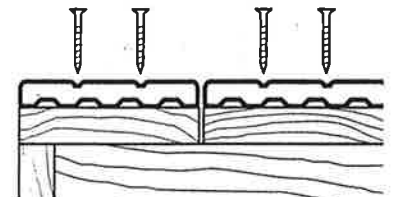
Tongue-And-Groove  
Starter Strip  
Installation



Tongue-And-Groove  
Plank Installation



2x6  
Plank Installation



TimberTopper™ Deck Cover  
Installation

## Span Requirements

### TimberTech Tongue-And-Groove Planks

		90° Angle	30° Angle	45° Angle
Maximum Span*	Commercial	16"	14"	11"
	Residential	24"	20"	17"

### TimberTech 2x6 Planks

		90° Angle	30° Angle	45° Angle
Maximum Span*	Commercial	12"	10"	8"
	Residential	16"	14"	11"

\*Special conditions will require an engineering inspection and/or reduced spans. Always consult local building codes. *NOTE: TimberTech is not intended for use as columns, support posts, beams, joists, stringers, and other primary load-bearing members.*

## Painting/Staining

- Although not required, TimberTech may be painted or stained.
- *Wait approximately 8-10 weeks, or until planks have weathered to a driftwood gray color (light brown in hot, dry climates) before painting or staining.*
- For best results, use a high-quality oil-based paint or solid color stain.
- Be sure paint or stain does not clog drain holes of TimberTech tongue-and-groove planks.
- Once TimberTech planks are painted or stained, subsequent applications will be necessary to maintain appearance. TimberTech Limited cannot be responsible for the performance of stains or paints applied to any TimberTech Engineered Decking System Product.

## Cleaning

- As with any outdoor product, clean periodically.
- Any deck cleaning product will work on TimberTech. For best results, cleaners containing phosphoric acid, oxalic acid, or hydrochloric acid as an active ingredient are recommended.
- For stains caused by mold or mildew, pour bleach directly on the stain, allow it to sit for 2-3 minutes, then rinse with cold water. TimberTech will lighten, then weather back to a driftwood gray color (light brown in hot, dry climates) in approximately 8-10 weeks.
- For heavy-duty stains, such as oil or grease, Oil Eater® Cleaner and Degreaser is specifically recommended.
- If stains have set, sand down to original color with fine sandpaper. The sanded area will weather back to a natural driftwood gray color (light brown in hot, dry climates) in approximately 8-10 weeks.
- Scratches can be removed using a wire brush (brushing with the grain).

## Codes, Certification

- TimberTech has superior slip resistance compared to wood, and meets or exceeds all A.D.A. standards for non-slip walking surfaces.
- TimberTech meets or exceeds all building materials standards including those published by the AMA.
- TimberTech has a Class B Fire Rating (ASTM E-108). While it burns similarly to wood, testing shows it to be no more toxic than wood.

## Warranty

TimberTech is covered by a 10-year limited warranty. For the full text of this warranty, please refer to our program on Sweet's CD, visit our web site, or call TimberTech Limited.

## Availability, Cost

TimberTech is available nationally through a network of lumberyards and building products distributors. Visit our web site or call TimberTech Limited for the name of the dealer in your area. Although the *total installed cost* of a TimberTech deck may be slightly more than treated southern yellow pine and redwood, its low maintenance easily makes it a long-term cost-effective choice.



TimberTech Limited  
P.O. Box 182880  
Columbus, OH 43218-2880  
Phone: 800/307-7780  
[www.TimberTech.com](http://www.TimberTech.com)

A Crane Plastics Company

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™ TimberTopper is a trademark of TimberTech Limited.  
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CPD-1296-C

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C-LOC® Engineered  
Vinyl Sheet Piling  
02832/CRA

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Perma-Plank®  
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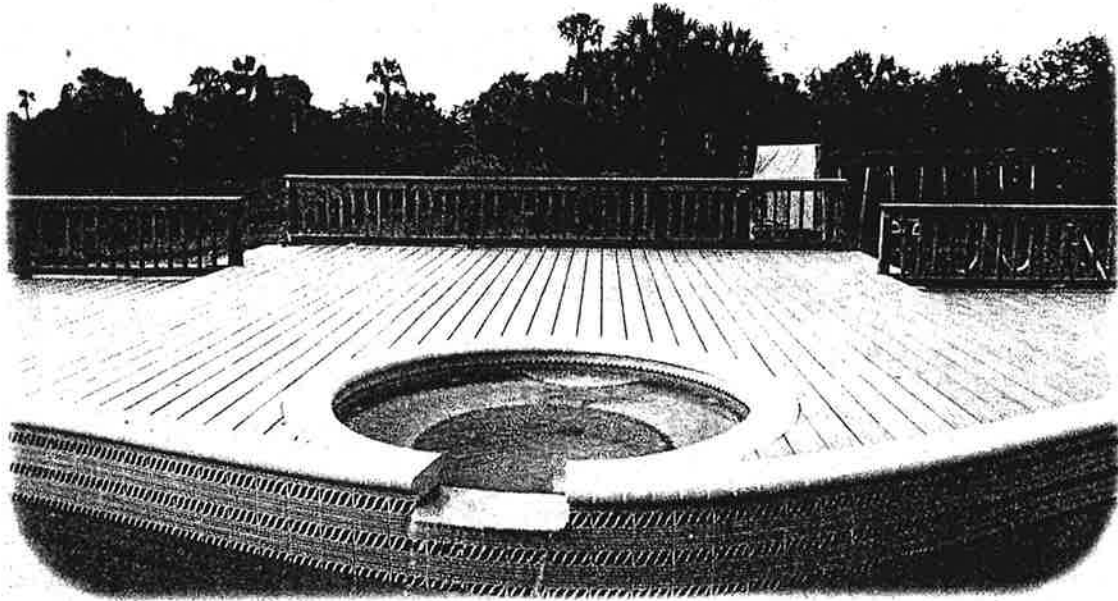
ONLINE

Represented by:

## Introduction

---

*Imagine a deck that never needs sealing. That resists termites. A decking material that won't be damaged by rain, sun or snow.*



It's all here. It's *Trex*<sup>®</sup> — the advanced composite wood-polymer decking.

- *Trex* brings together many of the best properties of wood and plastic.
- *Trex Easy Care Decking*<sup>™</sup> has been standing up to the toughest environments for over ten years.
- Ongoing weatherometer testing (equaling 25 years) has shown no deterioration of performance.

## More Trex® Benefits

---

*Durability is just the beginning of the story...*

*Trex* is “family friendly”

- Splinter-free
- Excellent traction, even when wet
- No need for stains or sealants

Good looking

- Elegant natural coloring
- Complements the look of traditional wood

Environmentally responsible

- Uses no virgin wood
- No preservatives or chemical treatments
- No more toxic than wood



# Trex® Versus Wood and Plastic

*Trex is the smart alternative to wood or plastic...  
Because of its composition, Trex combines many of the best characteristics of both wood and plastic lumber.*

Characteristic	Trex	Wood	Plastic
No sealants/ weatherproofing needed	X		X
Does not splinter	X		X
No checking, cracking or warping	X		X
Undamaged by rot or termites	X		X
Little shrinkage/swelling from moisture	X		X
Made from reclaimed waste materials	X		X
Slip resistant (wet or dry)	X	X	
National Building Code listing	X	X	
Cuts, fastens, sands and paints easily	X	X	
Low thermal expansion/contraction	X	X	
Excellent paint/stain adhesion	X	X	
Natural UV resistance	X	X	
Available at thousands of lumberyards nationally	X	X	

Trex comes with a 10-year fully transferable limited residential warranty against splintering, splitting, checking, rot, decay and termite damage.

**No Sealing • No Splinters • No Hassles™**

**Trex®**  
Easy Care Decking

# Trex® Limited Warranty (sample)

## The Trex Limited Warranty

As a purchaser or owner of *Trex* products, you have invested in an easy-care material which provides years of like-new performance. The *Trex* residential warranty provides ten years of comprehensive coverage. *Trex* eliminates the worries of:

- **SPLINTERING, SPLITTING AND CHECKING**
- **ROT AND DECAY DAMAGE**
- **TERMITE DAMAGE**

AND the *Trex* limited warranty is fully transferable. Please contact your local dealer for exact details of the *Trex* warranty program.



*No Sealing • No Splinters • No Hassles™*



*Trex* Customer:  
Please complete this card, detach and mail to *Trex*.

This information will help us serve you better.

### No *Trex* Limited Residential Warranty Registration Card

Please fill out this card completely. Return it to *Trex* Company within 30 days of purchase and file your receipt. Thank you!

Name: \_\_\_\_\_

Address of *Trex* Installation: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Where Purchased: \_\_\_\_\_ Date: \_\_\_\_\_

How did you hear about *Trex*? \_\_\_\_\_

What did you build?

- (circle one)
- Deck
  - Dock/Marina
  - Landscap
  - Pool/Hot Tub Surround
  - Walkway

Rank (1-6) the importance of the following benefits to you:

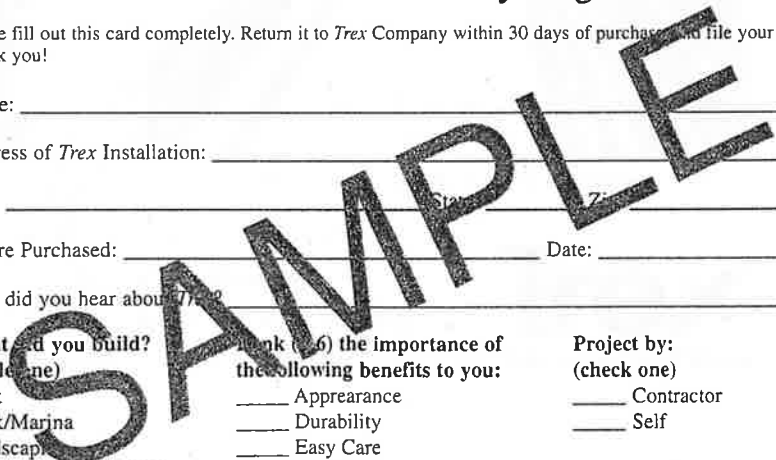
- \_\_\_\_ Appearance
- \_\_\_\_ Durability
- \_\_\_\_ Easy Care
- \_\_\_\_ Environmental Aspects
- \_\_\_\_ Splinter-free

Project by: (check one)

- \_\_\_\_ Contractor
- \_\_\_\_ Self

Location of *Trex* Project:

- \_\_\_\_ Primary Home



# Trex® Usage Guidelines

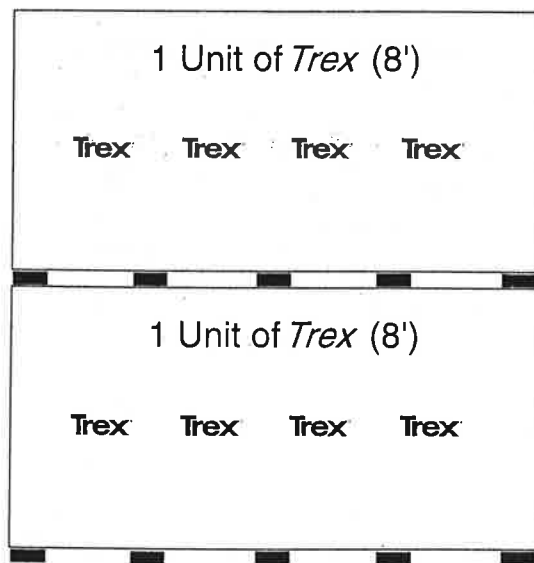
*Trex Easy Care Decking™* is suitable for a wide range of uses such as decking and landscaping. *Trex is not intended for primary structural members such as load-bearing columns, joists, stringers and beams.* In most installations, a span of 16 inches on center using a minimum of 3 joists will provide excellent results. Please refer to the *Trex Span Chart* in these guidelines for specific requirements or consult the *Trex Building Code listing* with the National Evaluation Service (NER-508).

## Getting Started

- As with any woodworking project, protective clothing and safety glasses should be worn.

## Handling Trex

- *Trex* weighs more than wood and it's more flexible. Special care should be taken when handling. Do not attempt to lift similar volumes of *Trex* as you do wood.
- When storing *Trex* at the job site, be sure to place on a flat surface.
- When stacking units, supports should start at each end and be spaced 24" on center. Supports should line up vertically.



*Not to scale*

## Cutting & Drilling Trex

- For best results, use carbide tipped blades and router bits.  
*Trex Tip:* Blades with fewer teeth (18-24 for 7-1/4" circular sawblade) work best.
- *Trex* workability is outstanding. Unlike wood, with *Trex* you won't need to be concerned about grain direction or knots.
- When drilling large or deep holes, periodically lift the drill out of the hole to draw the shavings out.

## Nailing & Fastening Trex

- Hot-dipped galvanized or stainless steel nails or screws are highly recommended to take full advantage of *Trex's* durability.
- More force is required to drive a nail into *Trex* than regular wood. Hold nail while hammering until it is driven 1/2" to 3/4". Hitting a nail with full force when it is not driven in may cause it to fly out. Nail guns work very well with *Trex*. For cold weather installations or when using wood screws or lag bolts, pre-drilling is recommended. Do not drill holes any larger than 3/4 of the screw/bolt diameter. Pre-drilling is generally not required for self-tapping or deck screws.

*Trex Tip:* Most screws will cause *Trex* to "mushroom" up over the screw head – simply tap down with a hammer to hide the fastener.

MATERIAL SAFETY DATA SHEET

TREX® WOOD-POLYMER LUMBER PRODUCTS - NATURAL

MSDSNAT-01

1. PRODUCT AND COMPANY IDENTIFICATION

APPROVAL DATE: 07/09/97

PRODUCT NAME: TREX® WOOD-POLYMER LUMBER PRODUCTS - NATURAL  
SUPPLIER: TREX COMPANY, LLC  
158 CAPITOL LANE  
WINCHESTER, VA 22602

24-HOUR EMERGENCY: 540-678-8100  
PRODUCT AND MSDS INFORMATION : 540-678-8117

2. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAMES AND SYNONYMS: WOOD FIBER

INGREDIENTS CONSIDERED HAZARDOUS TO HEALTH:

<u>SUBSTANCE NAME</u>	<u>WT.</u>
WOOD FIBER DUST	50-60

NOTE: WOOD DUST IS CONTAINED IN A POLYETHYLENE MATRIX. Contains used thermoplastics and waste wood. Plastic obtained primarily from reclaimed/recycled grocery bags and stretch film; wood fiber is typically obtained from furniture makers and/or waste pallets. Standard product is approximately 40% - 50% thermoplastic and 50% - 60% wood fiber.

See Section 8 for exposure limits (if applicable).

3. HAZARDS IDENTIFICATION

U.S. OSHA HAZARD COMMUNICATION STANDARD: This product may be used in applications that produce wood dust fibers. According to OSHA 29 CFR 1910.1200, certain wood fibers are considered hazardous if the workplace airborne concentration exceeds the OSHA or ACGIH exposure limits (see section 8).

EFFECTS OF OVEREXPOSURE: Dust can irritate nose, throat and respiratory tract and may cause mechanical irritation in the eyes. Repeated exposures to certain wood dusts can produce allergic skin and respiratory reactions including asthma and rhinitis. Inhalation of certain wood fibers can cause nasal cancer.

7. HANDLING AND STORAGE

Handling: TREX® Wood-Polymer Lumber is not intended for load-bearing or heavy structural applications. Please consult TREX®'s code listing, NER-508, and company literature for proper usage. TREX® Wood-Polymer Lumber is heavier than most traditional lumber products; proper handling is required to prevent damage or injury. Do not burn in fireplace or use as firewood.

Storage: Do not store in open or unlabeled containers. Store away from strong oxidizing agents or combustible material.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ventilation: Use in well ventilated area.

Respiratory Protection: Approved dust respirators must be used for dusty conditions or if breathing of dusts is likely.

Eye Protection: Safety glasses with side shields, or goggles, should be worn to protect against dust particles.

Skin Protection: No special equipment required. Good personal hygiene practices should always be followed.

Substance Name (CAS-No.)	Source	TWA		STEL	
		ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Wood Fiber Dust					
Certified Hardwood	OSHA		5		
Softwood	OSHA		5		
Western Red Cedar	OSHA		2.5		
Softwood	ACGIH		5		10
as Beech/Oak Cert. Hardwood	ACGIH		1		

Note: Limits shown for guidance only. Follow application regulations.

9. PHYSICAL AND CHEMICAL PROPERTIES

Typical physical properties are given below. Consult Product Data Sheet for specific details.

Appearance: Solid

Color: Light brown fades to light gray after 6 - 12 weeks outdoors

Odor: None

Odor Threshold - ppm: NE

pH: N/A

Boiling Point C(F): N/A

Melting Point C(F): > 110 (230)

Flash Point C(F): > 370 (698)  
Flammability: NE (Flame Spread Index = 80)  
Auto Flammability: 395 (743)  
Explosive Properties: N/A  
Oxidizing Properties: N/A  
Vapor Pressure-mmHg 20C: N/A  
Vapor Density: NE  
Evaporation Rate: NE  
Relative Density, 15/4 C: 0.96  
Solubility in Water: Negligible  
Partition Coefficient: NE  
Viscosity at 40C, cSt: N/A  
Viscosity at 100C, cSt: N/A  
Pour Point C (F): N/A  
Freezing Point C (F): NE  
Volatile Organic Compound: NE

N/A = Not Applicable NE = Not Established D = Decomposes

For further technical information, contact your marketing representative.

## 10. STABILITY AND REACTIVITY

Stability (Thermal, Light, Etc.): Stable.

Conditions to Avoid: Heat and flame. Build up of dusts.

Incompatibility (Materials to avoid): Strong oxidizers.

Hazardous Decomposition Products: Smoke, Carbon Monoxide, Acetaldehyde, Formaldehyde, Formic Acid, Acetic Acid.

Hazardous Polymerization: Will not occur.

## 11. TOXICOLOGICAL DATA

### Acute Toxicology

Oral Toxicity (Rats): Not established.

Dermal Toxicity (Rabbits): Not established.

Inhalation Toxicity (Rats): Not established.

Eye Irritation (Rabbits): Not established.

Skin Irritation (Rabbits): Not established.

### Chronic Toxicology (Summary)

IARC has determined that there is sufficient evidence to classify wood fiber as a human carcinogen. When wood fiber is incorporated into a polymer matrix, exposure is virtually eliminated.

## 12. ECOLOGICAL INFORMATION

Environmental Fate and Effects: Not established.

USE: COMPOSITE LUMBER PRODUCTS

INGREDIENT	PCT	CAS NUMBER
Wood Fiber	50-60	
Polyethylene	40-50	9002-88-4

\*\*\*\*\*  
 For Internal Use Only: MHC: NE NE NE NE NE, MPPEC: A, REQ: TREX® WOOD-POLYMER LUMBER, SAFE USE: G  
 \*\*\*\*\*

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## MILDEW

Mildew is a lower form of plant life, a fungus that can settle on any surface, then grow or colonize on that surface. Mildew is not caused by decking lumbers. Mildew can and does propagate on all decking lumbers including *Trex*.

Mildew needs a food source to colonize. Among the food sources are wood, wood resins, grass and tree pollens, and nutrient-rich dirt. The latter three are often found on any exterior horizontal surface, such as a deck. Often mildew growth that is thought to be growing on *Trex* is actually growing on a surface film which has accumulated on the deck. It should be noted that mildew does not affect the performance of *Trex* and is an aesthetic issue only.

All exterior building materials are affected by mildew. Even fresh lumber, when delivered to the job site, can have mildew spores and developing colonies. Patio furniture, concrete sidewalks, and stucco siding are often affected by mildew as well.

### How It Grows

Mildew spores, which are similar to seeds, are microscopic and therefore difficult to detect until the spores colonize. The spores are transported easily by air currents, insects, animals, and water. Due to mildew's adaptability and large number of species, it is very hard to control and impossible to totally eliminate. Mildew can exist in a variety of colors: pink, yellow, black, etc.

Mildew is part of the environment in which we live. In order for mildew spores to form



visible colonies, they need food, moisture, air (oxygen), and temperatures between 40 and 90 degrees Fahrenheit. It is impossible to control these four elements in an outdoor environment. Because of the horizontal position of installed decking, it becomes a catch-all for airborne mildew spores. Decks are also susceptible to collect the tree pollen, dirt, etc. that mildew uses as a food source.

### Factors That Encourage Mildew Growth

Of the four conditions required for mildew colonies to form, moisture and food may be the easiest to control. *Trex* decking that is insufficiently gapped will cause water to puddle. This puddling water becomes a breeding ground for mildew. Refer to *Trex* Usage Guidelines for gapping instructions. Gaps that become clogged with debris will not allow water to drain. It is imperative that gaps be kept clean. A clogged gap is the same as having no gap at all.

Decks that have organic soil runoff from plants or shrubbery are more susceptible to mildew.



This organic soil is a potential food source for mildew. Flower pots containing plants or shrubbery should be placed inside another larger container to catch any organic runoff.

If the deck is directly underneath a drainage gutter on the house, make sure the gutter remains clean. Gutters clogged with leaves and other debris will cause rainfall to overflow. Dirt-laden overflow from gutters creates an ideal environment for mildew to grow.

## How To Remove Mildew From *Trex*

All exterior building materials require cleaning. *Trex* is no exception. Periodic cleaning of *Trex* will remove much of the dirt that is a food source for mildew. *It is best to clean the dirt off your deck before mildew starts.* If mildew appears on your *Trex* deck, a deck wash containing sodium hypochlorite and a detergent should be used.

First, sweep the deck clean of any debris and clean any clogged gaps. Apply deck wash to a dry deck, brush with a stiff broom (you should see a slight "foaming"), wait 10 minutes, and then rinse. Let deck dry, apply a second application of deck wash, brush, and then leave it on. Do not rinse. A slight "yellowing" of your deck is normal and will fade in a matter of days. NEVER mix any other cleaners (ammonia, phosphoric acid, etc.) with deck wash.

Keep in mind that mildew is easily spread. Should other parts of your home have mildew (roof, walk, etc.), the mildew could return. Mildew does not damage *Trex* and, if it continues to propagate, will cause no harm to *Trex*. Proper gapping and regular cleaning of a *Trex* deck will significantly inhibit the onset of mildew growth. It is important to note that there are no 100% guarantees of success even after the best known control measures have been taken. Any extended period of warm, humid and/or rainy weather conditions may result in mildew growth despite all precautions.

The following deck cleaners/washes have been found effective in removing mildew from *Trex*:

- Olympic Deck Wash
- Valspar Mold and Mildew Remover

Other deck wash/cleaners containing sodium hypochlorite should remove mildew from *Trex*. Check the active ingredients before applying to ensure that it contains this ingredient. Always read the manufacturer's safety instructions, as well as directions for proper disposal of an environmental hazard and protection of surrounding plants and shrubbery. See your local *Trex* dealer for other suitable deck washes not listed. Call 1-800-BUY-TREX to locate your closest dealer.

**Trex**  
Easy Care Decking

# Caring For Your *Trex*® Deck

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## Problem

## Solution

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### Color Variations

- If your *Trex* project is brand new, please be aware that it takes 6 to 12 weeks of exposure to sunlight and water to weather *Trex* to its desired faded color. The weathering process may be accelerated in dry areas by periodically wetting down the deck with a garden hose. Areas in heavy shade will take considerably longer to fade.
- 

### Rust Marks, Ground-in Dirt and Grime

- Use a cleaning product containing a phosphoric acid base to remove the rust or dirt. These cleaners are readily available at lumberyards, hardware stores and home centers.
- 

### Oil and Grease Stains

- Remove grease and oil stains with a household degreasing agent as soon as the stain occurs.
  - If the stain has set, a light sanding with a medium-grit sandpaper works well. The sanded surface will initially become brown (as it was at installation), but over time the sanded area will fade back to its pre-stain hue.
  - Hint: Because the barbecue grill is a major source of these stains, you may want to lay down a sheet of plastic sufficiently large to capture all of the grease splatter.
- 

### Water Puddling

- If the gaps between boards are clogged, use a flat tool to clean between the boards.
  - Uneven joist installation or inadequate gapping between boards can also cause water to puddle. See your qualified decking/remodeling contractor.
- 

### Mold Stains

- Mold may form (on any surface) where moisture is prevalent and/or there is heavy shading and pollen/debris are allowed to collect on the deck. Use conventional deck washes or cleaners that contain sodium hypochlorite and detergent.
  - Be sure that the deck has gaps between boards to allow for water drainage and that the substructure supporting the deck boards is level.
  - Periodic cleaning of your deck, even if it appears clean, is important to prevent the build-up of pollen/debris that can cause mold.
- 

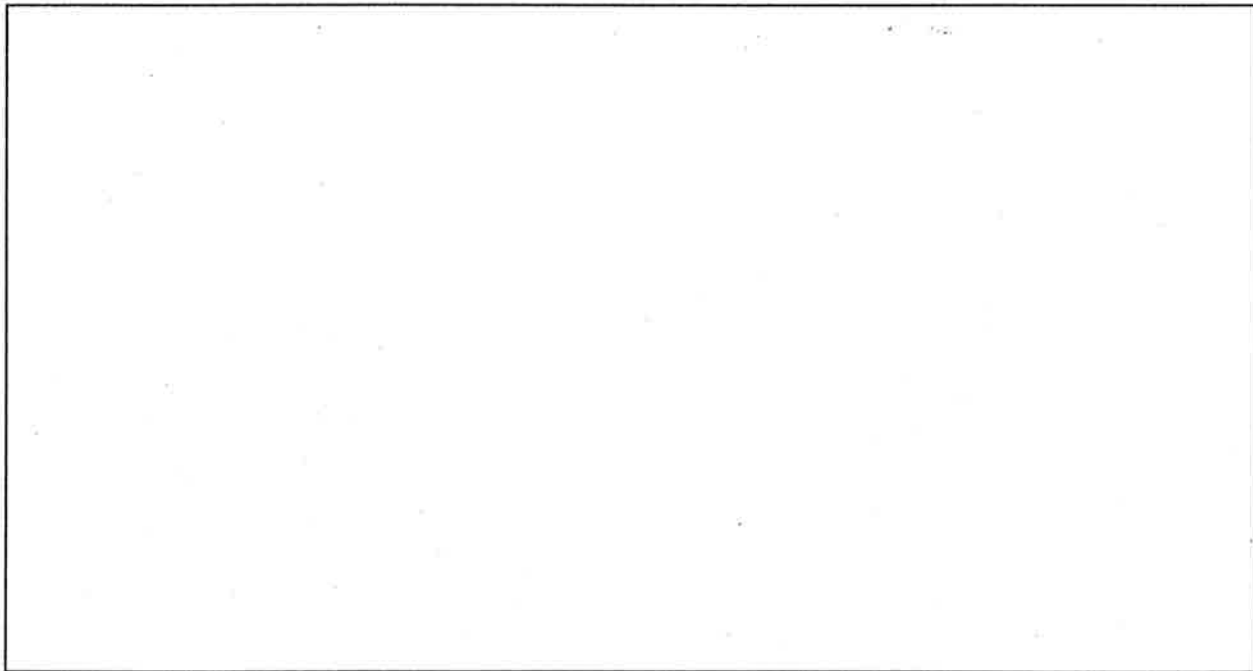
### Ice and Snow

- Calcium chloride or rock salt, available in many home centers, will melt ice on *Trex*.
  - Hint: Rinse the calcium chloride or rock salt off your *Trex* when first practical, to avoid surface stains.
-

## For More Information About Trex®

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For any questions regarding *Trex* specifications,  
usage guidelines or warranty information,  
contact an authorized *Trex* dealer.



To locate a dealer near you,  
phone: 1-800-BUY-TREX  
or visit our Web site at [www.trex.com](http://www.trex.com)

If you need to write to us, our address is:

*Trex* Company, LLC  
20 South Cameron Street  
Winchester, VA 22601