Paper™
Stone
The Earth's Surface™

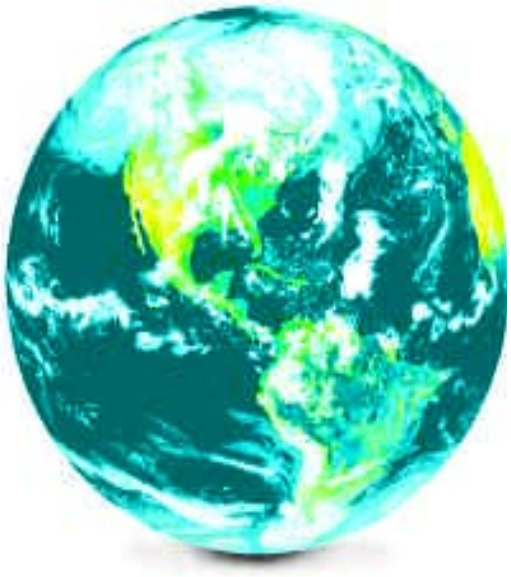
Sustainability is Mainstream.

That's a powerful concept.

When materials are made in accord with this principle an idea becomes a choice. As a value it means clean air, water, and responsible resource management. Choosing green products means living, working, learning, and playing in a healthier world.

PaperStone® is committed to innovative green products that contribute to a holistic lifestyle that is smart, elegant, and responsible.

PaperStone® – The Earth's Surface



PaperStone

PaperStone Certified is a beautiful and heavy-duty solid surface known for its performance, its warm touch, its contemporary appearance and its environmental sustainability. It is made from 100% post-consumer recycled paper and a proprietary, petroleum-free resin. It is certified by the Smartwood program of the Rainforest Alliance to the FSC standards. Specifying PaperStone may help you earn up to seven LEED credits. PaperStone is durable and is recommended for residential kitchen and bath and commercial uses.

PaperStone™

The Earth's Surface™

PaperStone isn't just an attractive new material that is produced in a socially responsible manner, it is also strong and tough. It has steel-like strength in span. It has stone-like beauty and it can be worked like fine hardwoods. PaperStone is innovative and cost competitive.

Sustainable Surfacing

Cashew-nuts and pods.

PANEL SIZE

The standard PaperStone panel is 60" x 144".

Other panel options are:
30" x 144", 30" x 72", 60" x 72"

NATURAL COMPONENTS FROM WHICH IT IS MADE PaperStone™ is made from sustainable sources. It is manufactured in three versions. Original PaperStone contains 100% post consumer cardboard and PaperStone Certified is made from 100% post consumer office paper. PaperStone made from virgin fiber is also available. All PaperStone products are made from Paneltech's proprietary, petroleum-free resin. All PaperStone products are available in the same panel sizes, basic colors, and have identical mechanical properties.

Composition

Phenolic resins are used to make PaperStone. They have been around for nearly a century since Henry Baekland invented Bake-Lite, the familiar black thermoplastic case of the original, black rotary telephones. They have long been prized for their extremely high abrasion resistance. They are still preferred for high quality automotive brake pads. What sets PaperStone apart are the company's highly-skilled and creative technical staff, the company's own resin laboratory, resin plant and commitment to the cleanest and 'greenest' products and processes that are technically and economically possible. PaperStone resins have also been specially designed to produce a hardwood-like, highly workable and not brittle composite panel.

Paper fiber is the other major component of PaperStone. The source of paper for the company's Certified product is Grays Harbor Paper Company, a small, independent, paper mill that is located adjacent to where PaperStone is made. Both Grays Harbor Paper Company and Paneltech International, LLC (the makers of PaperStone) are chain-of-custody certified by Smartwood to the standards of the Forest Stewardship Council.

PaperStone becomes a composite product when specially-produced sheets of paper are saturated with the company's proprietary resins and pressed under heat and pressure. This 'cross-links' the resin polymer in all three dimensions producing a dense, homogeneous and essentially non-porous composite product that doesn't delaminate. PaperStone has been tested under the most stringent testing protocols and has no detectable formaldehyde.

Mechanical properties

The standard PaperStone panel sizes are shown on the previous page. Standard thicknesses are readily available in 3/4 inch, 1 inch, and 1-1/4 inch. Other panel sizes and thicknesses are available by special order.

PaperStone can handle 45,000 pounds of compressive pressure per square inch and a 1-inch thick sheet will cantilever 24”-26” with deflection of less than 1/16 inch.

Common Applications

Its product category is architectural solid surface. It is specified by architects and interior designers for commercial and residential uses. PaperStone is prepared for final installed use by solid surface fabricators. It is specified for:

Tables Counters Wall cladding

Bathroom toilet partitions

Exterior siding (Rainscreens)

Window sills and door

thresholds Paneling Chair rails

Furniture Signs Tiles Cutting

Boards

It is extremely hard and is practically impervious to water. It is scratch resistant and used for cutting boards. It is also highly resistant to staining and can bear temperatures to 350º making it an excellent choice for kitchens.

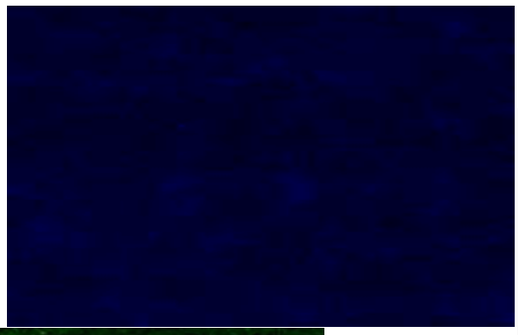
PaperStone has earned a Class A fire rating.

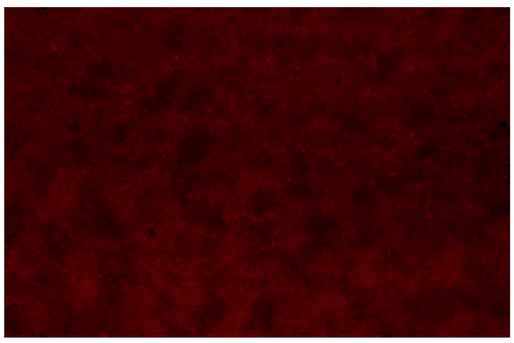
It is NSF Certified.

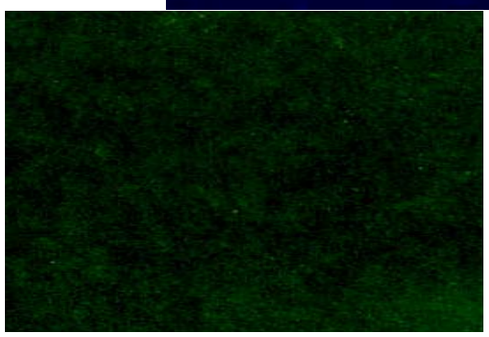
ORIGINAL SERIES CABERNET DENIM
EVERGREEN MOCHA SLATE

Colors

100% post consumer cardboard







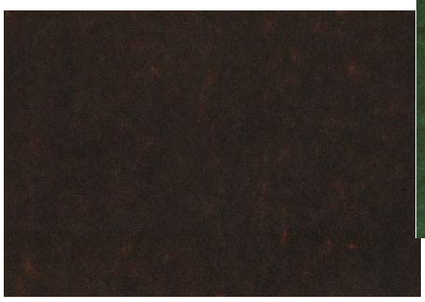
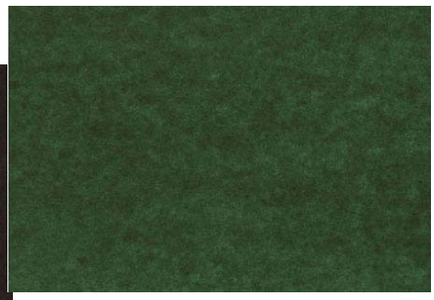
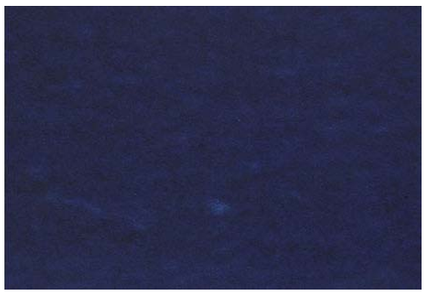
PaperStone is a composite material that is made from 100% post-consumer recycled paper. The color of the finished panel is determined by the recycled paper content, the recycled paper type (e.g. old cardboard containers versus mixed office waste), the phenolic resin and the pigments and dyes that are used. Because of all of these factors and the natural tendency of phenolic resins to darken and ‘yellow’ over time, we cannot guarantee that color will match precisely batch-to-batch. We have instead chosen to let the natural progression of aging proceed to produce an authentic product that matches to your expectation of what a natural product is supposed to do. PaperStone comes in the colors shown to suit any design style in the kitchen, bath or office.

CERTIFIED SERIES

CHOCOLATE
GUNMETAL
GRASS
INDIGO
OBSIDIAN
PLUM

Colors

100% post-consumer recycled content


Colors

VIRGIN FIBER

LEATHER

PaperStone Individual Colors

PaperStone
Colors & Variation

Gunmetal – The color darkens with age turning a greenish color over time. This is especially noticeable on the edges.

Chocolate – It first appears as a medium brown tone, and ages into a warmer brown with a more reddish violet (magenta) hue.

Indigo – A beautiful blue color, which darkens over time

Grass – A deep, dark green, which takes on a more brownish tone over time.

Cabernet – First appears as a deep wine red, then darkens slightly and becomes warmer in tone.

Denim – A rich, dark blue which tends to become darker still over time

Mocha – A rich, mottled brown with little color change over time

Leather – A more uniform brown that tends to darken over time. However, Leather is unique as it is made from virgin paper fiber, not recycled paper.

Slate, Obsidian, Plum, Evergreen
These colors show very little discernable effects of light, age and wear.

Solid Color

PaperStone's color comes from the natural color of the paper and the pigments and dyes used in the manufacturing process. The color is not a surface treatment. It is all the way through the product.

Patina and Aging

PaperStone will develop a seasoned appearance that is an inherent characteristic of the material. The aging process takes time and there will be deeper luster in areas of heavier use. Overall, it will appear softer and deeper in tone. To further understand the patina and aging process there are three important points to remember.

- Aging begins with manufacture and may take a number of years to complete. It is similar to the manner in which natural wood products acquire a deeper, richer tone over time.
- The effect of aging in PaperStone material is primarily a result of the aging of the resin component, which begins as pale amber and deepens to a rich shade of sienna and the color in the recycled paper.
- The aging and patina process is a natural progression. For this reason, there is no cause for concern and you should expect tonal differences between sheets at the time of installation, even if they are from the same batch. However, as the sheets age, variability converges, creating a more uniform appearance over time.

Tonal Variations

Color and brightness may vary from sheet to sheet and even within a sheet making each one unique. This variation is expected in a product composed of natural materials. PaperStone samples may appear different than the installed product due to the age and patina of the samples and the differing thicknesses of the materials. Measuring color variation from sheet to sheet is difficult and is subjective requiring good judgment be exercised when making comparative statements.

Striations — PaperStone has a mottled appearance, in which patterns show a striated effect lengthwise. This is less apparent on dark colors; however, the mottled appearance is still visible. These qualities are due to the natural variation in the paper used to make the material. Leather shows minimal striations, due to the uniformity of the natural wood fibers used to make this product.

Surface Texture — The surface texture and level varies. There will be more texture when it is first installed and it will become smoother and develop more luster over time and with use. It may also have a slight unevenness here and there on the surface level; this is because it is pressed, not molded, into the sheets.

Environmentally Sustainable

PaperStone is the only architectural solid surface certified for using 100% post-consumer recycled paper. It is also certified by the *Smartwood program of the Rainforest Alliance*. In addition, PaperStone may play a role in enabling a project to qualify for Leadership in Energy and Environmental (LEED) credits towards certification.

(The following section applies only to commercial applications until publication of LEED-R Residential Standards in 2007)

www.NSF.org

www.usgbc.org

www.fscus.org

www.rainforest-alliance.org

www.rainforest-alliance.org/programs/forestry/smartwood/

LEED CERTIFICATION INFORMATION

Individual materials and products used in buildings are not certified. The Version 2.2 certification process is for the entire construction project. The project earns “credits” towards becoming certified. The categories where credits can accumulate for Global partition products are based on LEED Standard 2.2 as follows:

Recycled Content: LEED V2.2 awards credits for buildings that contain recycled, salvaged, reused, or refurbished materials, with credits awarded as a function of the total building material weights (10% = 1 credit, 20% = 2 credits). Credit is based on the sum of post-consumer recycled material + 1⁄2 of pre-consumer recycled material. This may contribute to Credits 4.1 & 4.2 of the “Materials & Resources” area.

Local Regional Materials: LEED V2.2 awards 1 credit if 10% or 2 credits if 20% of the building materials are manufactured and extracted regionally within 500 miles of the project site. PaperStone may help qualify for these credits as it get its paper from Grays Harbor Paper less than ½ mile from its manufacturing facility. This contributes to Credit 5.1 of the “Materials & Resources” area.

Low Emitting Materials: LEED V2.2 awards 1 credit if the Composite Wood and Agrifiber products contain no added urea-formaldehyde resins. PaperStone contains no added urea-formaldehyde and its recommended attachement to cupboards is mechanical fasteners so no adhesive is needed and does not require a substrate on ¾” thickness and thicker. This contributes to Credit 4.4 of the Indoor Environmental Quality area.

There are three categories from which to earn LEED credits. **Materials and Resources** specifies from where the materials are obtained and from how far away. PaperStone qualifies under **Indoor Environmental Quality** as it does not emit VOC's or formaldehyde. **Innovation** and **Design Process** is also an area in which PaperStone may qualify for a LEED credit.

ENVIRONMENTAL IMPACT STATISTICS

A 1" by 60" by 144" slab of PaperStone Certified (versus a regular phenolic composite manufactured from virgin fiber and a regular, commercially available, solvent-based resin) saves:

- 1233 gallons of water
- 2.03 million BTU's of energy
- 131 pounds of solid waste
- 254 pounds of greenhouse gases
- 55 pounds of petroleum-based phenol
- 22 pounds of natural gas-based methanol.

Data is obtained by using an EPA energy use/savings calculator. A version of the calculator and user guides are available from the Internet at:
http://yosemite.epa.gov/oar/globalwarming.nsf/content/ActionsWasteToolsRecon.html

Technical Specs

PaperStone Certified is made of 100% Certified recycled paper, water-based phenolic resin with cashew nut shell binder and pigment. Heat and pressure transform this mixture into a thoroughly impregnated network of cellulose fibers that give PaperStone its hardness, density and strength in span or cantilevered designs.

PaperStone Specifications

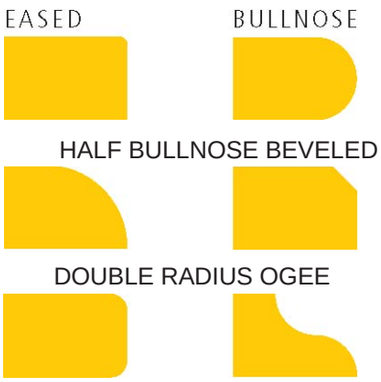
Water absorption (by weight)	0.82%
Density (g/em3)	1.4-1.45%
Internal bond (psi)	1,225 lbs.
Modulus of rupture (flexibility)	
Face	
X direction	24,320 psi
Y direction	24,080 psi
Edge	
X direction	21,834 psi
Y direction	21,413 psi
Modulus of Elasticity	
X direction	1724.25 ksi
Y direction	1666.58 ksi
Compressive strength	
Z direction (face)	45,324 psi
X direction	23,200 psi
Y direction	22,560 psi
Coefficient of Thermal Expansion	
Z direction	2.62
X direction	3.64
Y direction	3.48
Izod impact strength	
Face	
X direction (ft/lb/inch-width)	3.29
Y direction (ft/lb/inch-width)	2.76
Edge	
X direction (ft/lb/inch-width)	.73
Y direction (ft/lb/inch-width)	.75
Hardness test	
Barcole meter (Barber Coleman)	47 avg.

UV exposure Slight darkening for light colors, dark colors are stable
Formaldehyde No detected residues (less than 1 part per million)

ASTM E84 Fire Test Results

Flamespread Index: (20) Class A Rating Smoke Developed Index: (110) Class A Rating

STANDARD EDGES



(PaperStone has endless edging possibilities and is not restricted to the above Standard Edges)

PANEL SIZE

The standard PaperStone panel is 60" x 144". Other panel sizes are available.

PANEL THICKNESS

PaperStone panels are available in 3/4", 1" and 1-1/4" thicknesses.

Fabrication & Maintenance

PaperStone can be machined using the same tools and techniques used with fine hardwoods and solid surfaces. The information presented here should be used in conjunction with an experienced fabricator. For fabricators new to working with PaperStone we recommend that you talk to a qualified distributor or fabricator for in-depth coverage of the topics introduced here.

Cutting Methods

PaperStone works much the same as hardwood and solid surface. Always observe shop safety procedure and wear protective eyewear and clothing. Avoid inhalation of dust.

Cut PaperStone dry. Slow the blade speed or increase the feed rate if you detect excess heat. Fully support PaperStone before you begin cutting since the blade could bind when the slab shifts as the cut proceeds. We recommend using a triple chip carbide-tipped saw blade if possible and carbide-tipped router bits.

Seaming and bonding

Seams in PaperStone may show and should be incorporated into the design. Because seams show, built-up edges are not recommended. Plan seams so they are not next to sinks.

On a sturdy, level surface, set out spacer bars of uniform thickness and place the PaperStone sections on them. Leave a gap between the two sections that is slightly less than the width of a straight-edge router bit. Secure a straightedge to the section and use the straightedge as a fence to run the router through the gap so that the bit shaves a thin section of both edges at once. This procedure is known as a mirror cut/joint. This will create edges that will perfectly match.

Prepare the mechanical strengthening and aligning of the joint using one of the following two methods. Using a biscuit joiner, cut slots for standard wood biscuits or rout the necessary holes for the type of tight-joint fasteners typically used to connect sections of post-form laminate counters. Glue the joint using a slow-drying two-part epoxy. CA5 adhesive may also be used. Tint the epoxy by mixing in some of the sanding dust from a previous step. Once the joint has cured, lightly sand it to blend the seam with the surrounding area.

PaperStone Finish

PaperStone Finish is made entirely from food grade mineral oil, natural waxes (bee and carnauba) and vegetable products (soybean oil). All of the ingredients are natural and food safe. Waxes and soybean oil are used in cooking all the time Carnauba wax is a resin produced by the wax palm tree Copernicia Cerifera. This tree grows in various parts of South America. However, only the trees in the Northeastern tropical rain forests of Brazil produce the premium quality wax. It is produced by the tropical carnauba tree as protection from the incredibly harsh conditions of the tropical rain forest - intense heat, harsh equatorial sun and constant moisture and humidity. Any surface coated with carnauba wax will be similarly protected. Carnauba has a very strong grain structure and is the hardest wax known to man. In addition to being incredibly durable, carnauba dries to a deep, natural shine. In contrast, bees wax, paraffin and many synthetic waxes tend to cloud and occlude.

PaperStone Finish is recommended for all food service related applications.

PaperStone Finish is an all-natural preserver that rejuvenates and protects your composites, also ideal for all natural wood grains. Contains only food-safe ingredients. It is made in the USA.

A twelve ounce bottle of PaperStone finish will cover approximately 120 to 150 square feet.

You can also seam using a ‘superglue’ type product like CA5 from 3M. With CA5 you can attach two clean edges with a butt joint and clamp it. This will produce a very strong and tight joint but it cannot be tinted.

It is possible to seal joints with standard caulking sealants. Typical areas for this treatment are the underside of the backsplash and around undermounted sinks. Use a moderate amount of caulk in a color compatible to the PaperStone panel. A clear caulk may also be used.

Sanding and finishing

PaperStone comes with a natural finish on both sides. Exposure during shipping and handling may leave slight scratches. It is a natural product that unlike other solid surfaces that have been machined to very high tolerances, it may have small imperfections such as low and high areas. PaperStone is bonded sheets of paper and excessive sanding could wear through the topmost layer. For this reason we recommend that sanding and finishing be minimal.

Natural products possess inherant characteristics that may give them slight variations from panel to panel. A natural patina may emerge over time.

We have found that a satin sheen provides the most beautiful and easily maintained day-to-day surface. Sanding should start with an abrasive no coarser than a fiber abrasive pad such as a 3M Scotchbrite™ red or grey (Red = fine; Grey = superfine). Place the abrasive pad on the surface and place the random orbit sander pad at the center. Buff the entire surface until a uniform sheen is achieved. Wipe thoroughly with a damp cloth to remove dust and loose particles.

If machining marks exist on cut edges, a belt sander with 80 grit sandpaper may be used as a first step finishing with 180 grit sandpaper. When finishing Obsidian or Slate, sanding may begin with 180 grit sandpaper and finished with the fiber abrasive pad.

A final treatment of PaperStone Finish is recommended despite its extremely low porosity. It is an all-natural, eco-friendly and sustainable product. All of the ingredients are natural and food safe.

Directions for Use:

To use PaperStone Finish, place the bottle under a stream of warm water to make the fluid mix and flow more easily. Apply a thin coat to the surface with a soft cloth. Let it stand for 20 minutes and then wipe off any excess. Finish up using a clean, soft cloth to give an even, rich luster. For best results, do not use finished area for at least 12 hours so that the finish can harden.

How to Specify PaperStone

SUGGESTED SHORT FORM SPECIFICATION

Section 06650 (woods, plastics & composites) The section actually used is determined by product application.

Scope of Work

Provide PaperStone™ surfaces as shown on the drawings and specifications herein:

Materials

PaperStone™ Sheets shall be supplied by _____, and manufactured by Paneltech International, LLC, Hoquiam, Washington, and shall be cut to size, seamed and detailed in accordance with approved shop drawings. Color shall be (specify) _____ , and surface finish shall be (specify) _____ .

Shop Drawings

Prior to fabrication, the contractor shall furnish and submit detailed shop drawings for the approval of the architect/designer, showing accurate dimensions and details of all PaperStone™ panel work.

Fabrication and Installation

The fabrication and installation of all PaperStone™ surfaces detailed in this section shall be performed by an approved fabrication shop in accordance with the manufacturers' printed instructions and final shop drawings.

paperstone products

PaperStone products have a 15 year limited warranty on all it products.

PaperStone Limited Warranty

Paneltech International LLC (Paneltech), the makers of PaperStone, warrants that PaperStone products permanently and properly installed after November 15, 2007 and purchased through Paneltech-approved distributors, will be free from material defects for **a period of 15 years**. If the PaperStone product is found to have a manufacturing defect, Paneltech will, at its sole discretion, without charge replace the PaperStone sheet found to have such manufacturing defect. This warranty will only apply in the case of manufacturing defect in the original PaperStone product that was properly installed. This warranty applies only to the original owner and is not transferable.

This warranty is for PaperStone panels 3/4 inch thick and thicker used in countertops and for residential and commercial vertical applications. It does not include uses of PaperStone in saunas, shower pans, steam rooms or outdoor uses in, by way of example only, grill tops, outside counters and boats. Customers seeking warranties in such applications should contact their distributor directly and their requests may be addressed on a case-by-case basis.

This warranty DOES NOT COVER PaperStone panels that are advertised and sold as discounted, off-spec panels. This is not an ‘installation’ warranty and DOES NOT COVER any aspect of the installation of PaperStone if such failure was caused by a fabrication or installation error. Fabrication and installation errors include the mismatching of panels with obvious color variations.

Nor does this warranty cover damage caused by physical, chemical or other abuse, damage from excessive heat, use in certain applications, acts of nature, or any act of customer abuse.

Physical, chemical and other abuse: includes any use of PaperStone that is unreasonable considering the normal and expected uses in a residence or business, and includes, but is not limited to, damage by vandalism, use of improper cleaning solutions, leaving substances such as bleach or drain cleaner on the product without prompt cleaning, the dropping of heavy objects on the panel, or product that has not been maintained with proper care and use (see distributor or dealer for care and use details).

Warranty, *continued*

Excessive heat: means exposure to heat to such a degree that marks, rings or cracks appear on PaperStone sheets. Cracking around a cooktop may appear by permitting cookware that is on (or partially on) a heating element to overhang the cooktop causing excessive heat on the cooktop or from using high temperatures for excessively lengthy periods of time. Common sense needs to be exercised. Trivet channels can easily be routed into PaperStone and trivets should be used where hot pans will be placed on the counter.

Acts of nature: include, but are not limited to, exposure to the outdoors, weather effects, architectural and engineering design, structural movement or settling, job site conditions, freezing conditions, and fire.

Replacement

Paneltech will replace any area of the installation that is found to have a manufacturing defect if the panel was installed properly. Paneltech will pay the cost of the required product. The customer will be responsible for any other costs associated with or arising out of the replacement, including panel removal and replacement labor and materials, any plumbing and electrical disconnect and reconnect charges, tile, wall surface, or cabinet repairs or modifications that become necessary as a result of PaperStone replacement.

Specific Rights

Except as provided herein, Paneltech shall not be liable in either tort or contract for any loss or direct, consequential or incidental damages arising out of the use or ability to use PaperStone. To qualify under this warranty, the owner **must** provide the original sales receipt or other sales documentation acceptable to Paneltech which demonstrates proof of purchase of the PaperStone sheet within the 15-year warranty period. The customer must reasonably cooperate with Paneltech in its efforts to perform its obligations under this warranty, including any visual inspection deemed necessary by Paneltech or its agents.