

TECHNICAL SPECIFICATIONS: VINYL FLOORING

Vinyl flooring is known for its durability and versatile designs

Vinyl is without a doubt one of the most practical flooring types - it's not called Easy Living Flooring for nothing! Vinyl has become sophisticated in its manufacture, with wood and stone designs as well as modern patterns and metallic if you're looking to make a stylish statement.

Vinyl is often mistaken for Linoleum (lino flooring); smooth flooring made from the natural materials of linseed oil, pine resin, wood flour, cork powder, limestone dust and jute. Lino floors were once very popular smooth floors, but are now replaced by vinyl flooring due to its cheaper price and easier maintenance.

All of our Vinyl ranges at GWC come with a wear layer which coats the vinyl for added durability. Our vinyl floors are available in multiple thicknesses, with a variety of comfort backings, and ranging from a cushioned 1.3mm to a luxurious and super-insulating 4.5mm.

Manufacturing Process

Raw Materials; All vinyl products are made from combinations of vinyl resin and various additives that give these products their particular properties. For more information on the vinyl resin process, see general vinyl section. Every flooring formulation is different and most are proprietary. Some of the additives commonly used in vinyl flooring include:

- **Plasticizers**, oily liquids that are used to soften the vinyl and provide flexibility to the formula;
- **Stabilizers**, used to minimize degradation and discoloration from heat and light;
- **Pigments**, which are added during the manufacturing process to give vinyl a range of colors; and
- **Fillers**, such as limestone or clay.

Processing/ Fabricating; Once the additives have been combined with the resin, the resulting material is called vinyl compound, and is in pellet form. The nature of the vinyl compound allows versatility in the production process, enabling manufacturers to meet many of the performance requirements of various flooring applications. In the next stage of manufacturing, either vinyl tile or sheet vinyl flooring is created.

Vinyl tile is manufactured by one of two methods:

- By melt-compounding the ingredients at high temperatures, then molding the hot material into the desired shape; or
- By using the calendaring technique, in which the components are mixed together then fed through a series of rollers that gradually squeeze the material to the desired gauge. The calendared sheet is then coated to

increase abrasion and stain resistance. Finished tiles are most commonly 1/8" thick, but are also made 1/16" or 3/32" thick.

Although the total process and product raw materials will vary depending on the type of tile being produced, solid vinyl tile and printed vinyl tiles in general contain a much higher content of vinyl and less filler than vinyl composition tile (VCT).

Sheet vinyl manufacturing process is as follows:

- Sheets are processed on large drums or made by coating a thin layer of liquid (comprised of vinyl resin, plasticizer, filler and other additives) onto a backing material. This method produces a multi-layered construction typically comprised of a backing, vinyl foam core, decorative layer and clear vinyl layer. The entire product is cured in an oven, then, in some cases, coated with a thin film of urethane.

Patterns are applied to some sheet vinyl flooring using the rotogravure printing method, in which colors and patterns are printed on the surface of the base layer; or by the inlaid method, in which the design goes all the way to the backing. With rotogravure, a rotating cylinder prints colored inks on top of the core layer, offering virtually unlimited possibilities in patterns and designs. The printed pattern is then covered with a clear vinyl wear layer and the product is oven cured. In the inlaid process, solid-colored vinyl chips are laid on top of a carrier sheet and then bonded together, under heat and pressure, creating the resulting pattern.

Sheet vinyl is available in continuous rolls between 6' and 15' wide, offering the advantage of installation with few or no seams in which moisture and dirt can collect.

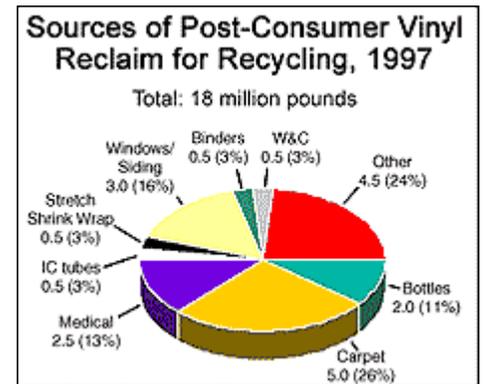
Selection/Specification Guidance

Relevant Standards; Some tile and sheet vinyl floors are available with enhanced slip retardant surfaces. These floors are suitable for a variety of commercial and institutional applications such as in shower rooms, lavatories, ramped corridors, and around swimming pools, whirlpools or spas. Because of the variety of vinyl flooring available and the varying applications for its use, check with the manufacturer for relevant testing standards to meet the unique requirements of each application.

Code information; Resilient floor coverings are usually exempt from model building code flammability requirements because they are not considered to be an unusual fire hazard. However, some building code officials, government agencies and other regulatory authorities require test information on the fire performance of resilient flooring. The most widely used test for flammability is based on the Flooring Radiant Panel test (ASTM E648). Another standard commonly used is ASTM E662 - Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials. The current editions of [International Code Council \(ICC\)](#) Standard Building Code and the [National Fire Protection Association \(NFPA\)](#) 101 Life Safety Code reference the Flooring Radiant Panel Test.

Vinyl Recycling

All types of vinyl products can be recycled and reprocessed into second-generation products. According to a 1999 study by Principia Partners, more than one billion pounds of vinyl were recovered and recycled into useful products in North America in 1997. About 18 million pounds of that was post-consumer vinyl diverted from landfills and recycled into second-generation products. Overall, more than 99 percent of all manufactured vinyl compound ends up in a finished product, due to widespread post-industrial recycling.



Recycling Programs Collect Vinyl Flooring from Construction Sites, Old Buildings

In the escalating push to divert material from landfills, vinyl flooring manufacturers are collecting installation waste from construction sites and even experimenting with reclaiming old used vinyl flooring.

Recycling Vinyl Siding Found Easy and Economical

When a Canadian company stripped the vinyl siding from 275 houses being demolished on a military base, it was able to salvage 100 percent of the siding and then deliver it all to recyclers, saving many thousands of dollars in landfill fees and avoiding the landfill.

'Excellent Progress' Reported in PVC Recycling

The European PVC industry reported that its recycling program "exceeded expectations" in 2006, more than doubling the volume of recycled material for the second year in a row.

Vinyl Material Key To Opening Christo's Gates

A key medium in artist Christo's heralded "The Gates, Central Park, New York" was vinyl. The ability to easily extrude vinyl to match the saffron color scheme of the project; its durability; and, most importantly, its ability to be recycled made it the material of choice.

Vinyl Recycling Success Stories

Too often, people look at vinyl recycling with skepticism, and question whether vinyl is really recyclable. The Vinyl Institute has been asked many times to provide concrete examples to prove that vinyl is actually being recycled.